

The Biconditional Frame

As a Type of Schematic Knowledge Exploited in Reading Comprehension

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Abstract

This paper postulates the possibility that a logical relation generally known as biconditional is in operation in the comprehension process as a type of schematic knowledge to be imposed on the text information. The schematic knowledge is referred to as the biconditional frame, which is described as a logical relation that reflects the communicative intention of the writer to share a norm with the reader. The comprehension process is interpreted as a type of evaluation process in which the reader specifies the slots of the schema with appropriate propositions directly retrieved or inferred from the text and awards them some status and value.

keywords : biconditional, evaluation, frame, schema, status, value

0. Introduction

In this paper I propose a schematic knowledge or frame which the reader can exploit in the reading comprehension of a text to see its point more clearly and evaluate it more critically than otherwise. The notion of frame in text comprehension is generally understood as a specific type of template consisting of a set of semantic elements such as Problem and Solution. In the reading comprehension of a text the reader is assumed to impose the template on the text information trying to identify the segment of the text that plays the role of each semantic element.

The frame that I refer to as the biconditional frame has been developed on the basis of my analysis of various newspaper articles in which a certain type of speech act such as recommendation seems to play an important role. Several examples of the analyses will be shown in due course. The biconditional frame is unique in that at the most abstract level it is assumed to be a logical relation, that is, biconditional rather than a chain of semantic elements such as Problem and Solution. I claim that the reader brings the biconditional frame into the comprehension process as a logical template. The componential propositions of biconditional are considered to function as the slots of the frame. The reader has to fill the slots with appropriate propositions retrieved from the text directly or indirectly. These propositions are specified and evaluated throughout the comprehension process.

I owe my idea on the biconditional frame mainly to the preceding research on discourse organisation done by two scholars: Susan Hunston(2000) and Michael Hoey(1979, 2001). Hoey studied the text organisation pattern which is generally known as *the Situation-Problem-Solution-Evaluation pattern*. While analysing newspaper articles in Hoey's theoretical framework, I noticed that some kind of modification of the theory is necessary to account for some essential characteristics of texts being analysed. As is explained later, Hoey's approach seems to be suitable for analysing factual reports, but texts such as news articles in which

a proposal of some action or a plan is reported are often oriented towards the future situation and cannot be explained so clearly.

In order to modify the theory it is useful to refer to Susan Hunston's work on evaluation. Hunston's work is an attempt to interpret text comprehension as a process in which entities are accumulatively evaluated. Particularly important for the development of my discussion is her view that propositions are the object of evaluation. By separating a proposition from its evaluative elements, both factual and future-oriented texts seem to be explained consistently.

While analysing news articles using Hunston's approach, I started thinking that at the most abstract level of evaluation it is biconditional that is the object of evaluation, which is the main topic to be discussed in this paper. The biconditional frame is specified by propositions retrieved from text. Since Hunston thinks that propositions are the object of evaluation, to posit biconditional as the object of evaluation means to go one level further up in the process of abstraction. Postulating biconditional at the most abstract level is justified by explaining it as the logical structure representing the communicative intention to share a norm about the world.

In Section 1, Hunston's theory of evaluation is briefly introduced and is compared with Hoey's theory. In Section 2, several texts are analysed in the framework of Hunston's evaluation theory. In Section 3, the biconditional frame is presented which underlies the analysis of all the example texts shown in the previous section. In Section 4, logical and functional properties of the biconditional frame are discussed. In Section 5, concluding remarks are made.

1. Susan Hunston's discourse theory

In this section Susan Hunston's discourse theory, which analyses text as a process in which various types of evaluation are made, is briefly introduced. Hunston explains the production and comprehension of written text as a process in which entities are evaluated in terms of their "status" and "value". Evaluation is made on two different planes of discourse: "the autonomous plane" and "the interactive plane"¹. On the autonomous plane world-entities, that is, things that belong to the external world, are the objects of evaluation, and on the interactive plane discourse-entities, that is, propositions of the discourse world, are the objects of evaluation.

Further explanation might be needed to grasp the meanings of two planes of discourse. On the autonomous plane status means what makes objects in the external world a thing of a particular quality and trait. For example, a group of people might be assigned a status of terrorists, cult or charity institution. Value is evaluation given to these statuses such as "positive value" given to charity institution and "negative value" assigned to terrorists. Value on this plane is associated with the good-bad parameter.

On the interactive plane, on the other hand, status means what makes a proposition a statement of a particular type such as hypothesis, assumption, assessment, report and recommendation. Status determines the range of responses open to the reader and limits the range of subsequent statements it is possible for the text to make. For example, if the reader understands a statement as a recommendation, he may naturally expect subsequent statements to contain the benefits of the recommendation as part of their information. Similarly, a statement awarded the status of assumption is expected to be followed by another statement that functions as its verification. The subsequent statements that support or deny the validity of the preceding statements are respectively regarded as adding positive or negative value.

¹ The notions of autonomous and interactive planes were first presented by Sinclair (1981). Hunston's notions derived from Sinclair's with some modification.

Hunston refers to these subsequent statements as value. Validity on this plain is mainly related to certainty.

Hunston explains evaluation on two planes as follows:

The ideological space of a discourse is constructed both by the way the world is labelled (evaluation on the autonomous plane) and by the way the argument is constructed (evaluation on the interactive plane). What counts as knowledge or as a valid argument (interactive status) is as important as what the world is seen as made up of (autonomous status). (Hunston 2000: 205)

It might be useful to show one example taken from Hunston to illustrate what these notions mean.

(1) Right now a new wave of anti-sect paranoia is sweeping the world. (ibid: 194)

In (1), a reaction to groups of people is regarded by the writer negatively as anti-sect paranoia. In other words, a world-entity (a reaction to groups of people) is awarded the status of anti-sect paranoia, which in turn assigns the entity a negative value by virtue of the semantics of the term *paranoia*. The negative value is emphasised by the writer's claim that the paranoia is being widespread as a new wave. This evaluation process presupposes evaluation of another world-entity, that is, groups of people, who are given the status of sects and are assigned a negative value because of the semantics of this term. These evaluations of world-entities are presumed to take place on the autonomous plane.

In Hunston's example, (1) is followed by (2), which is added to illustrate another type of evaluation, that is, evaluation on the interactive plane:

(2) All ruling bodies, political parties and the media seem unanimous in their suspicion and hostility towards sects and any group of people labelled a 'sect' are automatically viewed with prejudiced eyes. (ibid: 194)

Evaluation on the interactive plane is concerned with what roles propositions or statements as discourse entities play in organising the argument developed in the text. For example, both (1) and (2) are regarded as a judgement, opinion or claim. They are not regarded as a report of facts since they include so much subjective judgements. Identifying functions of statements in this way, which often means identifying their illocutionary forces, is one of the two important factors of status assignment on this plane. The other important factor is determining the person to whom the validity of the statement is ascribed. For instance, both (1) and (2) are expressed as the information that is ascribed to the writer himself: the writer is committed to the validity of the information without ascribing it to another person or source of information. Hunston calls this type of information as “averral” as opposed to “attribution”, which means the information of which validity is ascribed to someone other than the writer. Thus, with respect to both (1) and (2) we can talk of the status of averred opinion.

Identifying the status of each statement in text, however, by itself does not elucidate its organisation satisfactorily. Evaluation is also about how statements in text are related to each other and such relation is explained in terms of the notion of value. Regarding our example, (1), which is awarded the status of the averred opinion, is considered to be supported by (2), which functions as its evidence. About this Hunston thinks that (2) adds a positive value to (1) as its evidence, which is equal to saying that (2) is the value of (1).

The frame that is later postulated in this paper is seen as a network of propositions

among which a particular logical relation is assumed to be established. Each proposition of the frame is endowed with a specific type of status. For describing this feature of the frame it is sufficient to consider only evaluation on the interactive plane. In the rest of this paper, therefore, my discussion is mainly concerned with evaluation on the interactive plane: evaluation of propositions in terms of their status and value.

At this point it will be useful to compare Hunston's evaluation theory with Michael Hoey's theory on the macrostructure of written text (1983, 2001). Their approaches share many essential characteristics but have many differences as well². Here, I simply point out one of the advantages Hunston's theory has over Hoey's, which can be credited to Hunston's notion of status.

Hoey (1983) analyses written text in terms of a text organisation pattern which consists of four elements: Situation—Problem—Response/Solution—Evaluation³. He explains that this relation established among the elements can ultimately be understood as consisting of the most basic relation between the two elements: Situation and its Evaluation. For instance, Problem is analysed as Evaluation of Situation as problem and Response is analysed as Evaluation of Situation as response. Unlike Hunston, Hoey hasn't talked about evaluation on the two planes of discourse, but if we regard Situation as world-entities (including events and actions), evaluating situation as problem or evaluating situation as response seems to be easily interpreted in Hunston's terms as giving a status to the world-entity on the autonomous plane.

One of the characteristics of the S-P-R-E pattern is that the object of evaluation is mainly the real situation which is considered to be facts, i.e. actual states, events and actions. In other words, when texts are about various hypothetical situations such as future plans and recommendations, the elements of the pattern have to be more or less modified. Hoey (2001), for instance, uses a term "Recommended Response" to represent a variant of Response. He describes it as an intermediate stage between Problem and Response of the S-P-R-E pattern. It is an intermediate stage since it has not been actualised yet. Regarding the example below,

'Did you get any sleep last night, Ted?

'Not a wink, Fred.'

'My bed is too little!'

'My bed is too big!'

'*What can we do about it, Ted?*'⁴

'I don't know Fred.'

'I know what to do!' said the bird. 'Just switch the rooms. Ted should sleep upstairs and Fred should sleep downstairs!' (2001: 125)

² Hoey used to be Hunston's supervisor at the University of Birmingham and naturally, there are many common features between their theories. In this paper, I describe Hunston's theory as one which can be applied to a greater number of text types than Hoey's. The greater applicability is partly due to Hunston's view on the proposition as the object of evaluation.

³ The element, Evaluation, needs some explanation. It is the portion of text which describes the result of the response or solution that has been taken. Since the result is characterised either as positive (if the expected result is brought about) or negative (if the expected result is not brought about), it can be seen as evaluating the Response/Solution. It is hence named Evaluation. Here we can see the prototypical idea that may have prompted Hunston to regard statements supporting a preceding statement (i.e. status) as its value.

⁴ Hoey italicises "*What can we do about it?*" in order to show it as a linguistic signal for the pattern: it signals the relation between Problem and Response. One of the most important purposes of his study is to identify various linguistic signals for the pattern and its elements. The most conspicuous signals are the lexical items to show the elements of the pattern: *problem*, *response* and *solution*.

Hoey explains the birds' last statement about a hypothetical situation as follows:

This Recommended Response is not yet an actual Response, in that it does not answer the question *What did they do about it?*, but it shifts attention from Problem to Response. (2001: 128)

The choice of the term *a recommended response over a recommendation of a response* symbolically implies that Hoey's emphasis is on facts or world-entities rather than the interactive function of the statement. It can be said that the object of evaluation in Hoey's theory, at least with respect to the S-P-R-E pattern, is world-entities, particularly, facts. When entities are hypothetical, a new variant of the pattern must be postulated such as S-P-Recommended Response-Expected Result, etc.

By postulating a text organisation pattern consisting of factual elements we end up restricting the type of text which can be accounted for. If the organisation of a text is predominantly characterised by its interactive features rather than factual developments, we need elements which are totally different in their quality from those of the S-P-R-E pattern. Instead of the elements representing world-entities we need interactive and functional elements that represent discourse-entities such as *questions and answers*.

Hoey (2001) discusses the Question-Answer pattern, which he thinks is so different from the S-P-R-E pattern or its variants that it should be treated as an independent pattern. One of the differences which are relevant to our discussion is described as follows:

The second dissimilarity (from other patterns) relates to the impossibility of an intermediate stage between Question and Answer. Between Problem and Response there is the possibility of an optional stage labelled "plan" by the story grammarians: often in authentic texts this takes the form of Recommendation. A similar middle stage is possible for all other patterns⁵. Only with Question-Answer am I unable to attest such a stage. (2001: 176-177) <My underline>

The reason for dissimilarity is that different types of time sequence are at issue. With respect to the S-P-R-E pattern we are concerned with the sequence of states or events as world-entities while with respect to the Question-Answer pattern we are concerned with the sequence of speech acts performed in discourse, that is, the order of discourse-entities. The lack of a middle stage in the case of the Question-Answer pattern is nothing surprising if we are considering the order of world-entities. Between the event questioned about and the event given as its answer there can be no intermediate stage simply because they are one and the same event.

With due respect to Hoey, even when we consider the sequence between discourse-entities, the presence or absence of the intermediate stage does not seem to be the reason for the dissimilarity he points out. It seems to be fairly easy to create a text in which the writer presents some information which is not exactly the answer to the question but is on the right train of thought:

Why does the politician read history books?

⁵ The S-P-R-E pattern is the most prevalent of all the culturally popular patterns of text organisation. Hoey (2001) presents many other patterns such as the Goal-Achievement pattern, the Opportunity-Taking pattern, the Desire Arousal-Fulfilment pattern, the Gap in Knowledge-Filling pattern and the Hypothetical-Real pattern as well as the Question-Answer pattern.

People read history books to learn something useful for them.
The politician reads them to learn how to lead a group of people.

In this made-up text, the second sentence offers an aid for the reader to find the exact answer presented in the last sentence. The discourse act of giving such hints would be reasonably regarded as an intermediate stage between questioning and answering.

These difficulties arising in Hoey's theory can consistently be dealt with in Hunston's theoretical framework. It should be remembered that in her theory evaluation takes place on two planes: on the autonomous plane world-entities are evaluated and on the interactive plane discourse-entities or propositions are evaluated. In her theory, the question does not arise whether a response on the intermediate stage should be regarded as a variant of an actual response. An action is awarded the status of response on the autonomous plane. Meanwhile, the proposition representing the action can be awarded either the status of recommendation or the status of report on the interactive plane. As for the Question-Answer pattern, the question element might be interpreted as a special type of evaluation in which the status of question is awarded to the proposition on the interactive plane but some part of the proposition is left unspecified waiting to be specified on the autonomous plane. The answer element may be regarded as a value of the question and it specifies the part of the proposition that has been left unspecified in the question on the autonomous plane.

2. Text analysis

To investigate the function of status assigned to the propositional content of a statement is an effective way to elucidate text organisations. Since all the propositions in text are awarded some status, any text can be seen as a status-chain the writer intentionally chooses for a particular communicational purpose. The reader's task is to retrieve the meaningful chain of status intended by the writer, such as, <recommendation>-<statement of benefit>. If "a set of status categories" can, as Hunston suggests (*ibid.* 186), be identified, it will be possible to offer a systematic explanation of text organization from this point of view. The type of text might be accounted for in terms of the status categories interacting with each other in it and the pattern of interaction might be explained in terms of communicational purposes unique to various genres. Hunston reports that the contrast between hypotheses and facts is one of the primary contrasts in academic articles on experimental research and the division between fact and assessment plays the most significant function in journalistic persuasive writing.

From pedagogical point of view, there is no doubt about the importance of learning status-chains and relevant linguistic expressions that are prevalently found in the genre the learner is concerned with. The learner has to be able to assign an appropriate status to each statement in text while reading and writing. Misunderstanding in reading activity often results from assigning a wrong status to a statement. This kind of mistake is more likely to be made when the sentence does not include explicit signals to show its status. Knowledge of status sequence, such as, <recommendation>-<statement of benefit> obviously helps the reader avoid such mistakes.

In the rest of this section some authentic texts are analysed in the theoretical framework developed by Hunston. All the texts used here were taken from the electric data, the Independent on CD Rom 1989, which compiles all the newspaper articles published in the year. All the sentences in the texts are numbered for referential convenience. Analyses of texts are presented in a diagrammatic form.

TEXT 1

-HEADLINE- (1)Barristers' leaders call for fresh legal aid fund

-TEXT- (2)A CONTINGENCY legal aid fund should be set up to ensure more people can afford justice, barristers' leaders said yesterday. (3)The fund would be self-financing mainly from a small fixed proportion of damages awarded in successful civil court cases, the Bar Council said. (4)The Bar rejected the Government's proposed civil legal aid 'safety net' scheme as unworkable and wrong in principle. (5)Under the proposed scheme, clients would have to pay legal fees to a limit and only apply for legal aid if costs passed that level. (6)It was unfair to expect clients to commit their own resources first without a reasonable certainty that they would receive legal aid to continue their case, the Bar said. (7)The Bar Council chairman Anthony Scrivener QC, said: 'Action is needed to ensure that more people can afford to get justice in our courts and in our tribunals.

Status	recommended response attributed to barristers' leaders	action to be evaluated		
		(1) (2)setting up a fresh contingency legal aid fund		
Value	(2)desirable consequence attributed to barristers' leaders (3)the Bar Council's supporting proposal (7)A. Scrivener QC:BC chairman's support and desirable consequence	bases	+/-	message adding value to the action
		(equality)	+	(2)more people can afford justice
		(practicality)	+	(3)The fund be self-financing mainly from a small fixed proportion of damages awarded in successful civil court cases
		(need) (equality)	+	(7) Action is needed more people can afford to get justice in our courts and in our tribunals
Status	(4)alternative recommendation attributed to the government	action to be evaluated		
		(4)civil legal aid 'safety net' scheme		
Value	(4)the Bar's rejection (5)undesirable consequence averred (6)the Bar's assessment	bases	+/-	message adding value to the action
		(practicality)	-	(4) the scheme be unworkable and wrong in principle
		(morality)	-	(5) clients would have to pay legal fees to a limit and only apply for legal aid if costs passed that level
		(cost)	-	(6)It was unfair to expect clients to commit their own resources first without a reasonable certainty that they would receive legal aid to continue their case

The above analysis shows that two sets of evaluation on the interactive plane are identified in the text. One of them is the evaluation of fresh legal fund as a recommendation attributed to barristers' leaders (status) of which validity is supported by (2),(3) and (6) (value). The other is the evaluation of *civil legal aid 'safety net' scheme* which is assigned the status of an alternative recommendation attributed to the government, of which validity is denied by (4),(5) and (6). The relationship between these two sets of evaluation can be interpreted in such a way that the first is supported by the second: denying the validity of the alternative plan ultimately adds value to the original plan. In other words the second set of evaluation as a whole may be regarded as another value to support the original plan.

It should be noted that the analysis includes the element shown as bases. Whether it is positive or negative, value is considered to be judged on a certain criterion. Expressions

such as more people can afford in (2) and *it is unfair* in (6), for instance, imply that equality and fairness are esteemed morals which constitute a criterion against which value judgement is made.

Another point to be noted here is that evaluation is achieved in a multilayered manner. It was mentioned above that one of the two sets of evaluation identified in the text can also be interpreted as a value to support the other. Evaluative layering of this kind can also be identified at a lower level. The theory claims that every statement in text can be assigned a status. This means that every sentence that has been subsumed under the category of value in the above analysis can also be analysed in terms of its status independently of the whole context. Decision on whether a statement is categorised under status or value includes subjective judgement on the part of the reader or analyst. Accordingly, the diagram above may be modified to reflect different judgements of the reader or analyst.

Text 2

-HEADLINE- (1)Channel rail tunnel bans livestock

-TEXT- (2)FARM ANIMAL exports will be banned from the Channel tunnel when it opens in less than two years from now, Eurotunnel said yesterday. (3)The company heading the project said it would not be economic to provide the air-conditioning needed to protect the livestock during the 35-minute journey underground. (4)When the tunnel begins operations in June 1993, 28-lorry freight trains will be leaving the Folkestone terminal every 20 minutes. (5)The drivers will travel in air-conditioned compartments on the trains, but any livestock remaining in the trucks would be subjected to temperatures of up to 30C because of friction against the air as the trains pass through the tunnel. (6)The decision will be welcomed by animal welfare groups, which have been campaigning for an end to 'on-the-hoof' animal exports. (7)Christopher Garnett, Eurotunnel's commercial director, said charges for using specially-adapted rolling stock would have been high.

Status	(1)(2)recommendation attributed to Eurotunnel	action to be evaluated		
		(1)(2)banning farm animal exports from the Channel tunnel (farm animals must not be exported)		
Value	(6)expected assessment by other groups	bases	+/-	message adding value (ground)
		animal welfare	+	(6)the decision will be welcomed by animal welfare groups which have been campaigning for an end to 'on-the-hoof' animal exports
Status	(implicit alternative recommendation)	message to be evaluated		
		(farm animal exports go on) <inferred from (1)(2)>		
Value	(3)assessment attributed to the company Heading the project (Eurotunnel) (4)(5)hypothetical situation and undesirable consequence averred (7)undesirable consequence attributed to Christopher Garnett's (Eurotunnel)	bases	+/-	message adding value (ground)
		economy	-	(3)it would not be economic to provide the air-conditioning needed to protect the livestock during the 35-minute journey underground
		animal welfare	-	
		economy	-	(4)(5)The drivers will travel in air-conditioned compartments on the trains but any livestock remaining in the trucks would be subjected to temperatures of up to 30C because of friction against the air as the trains pass through the tunnel (7) charges for using specially-adapted rolling stock would have been high.

In this example the message to be evaluated in the second set of evaluation is inferred from (1) and (2) as logically opposite information. Since this kind of implicit information is also included in the analysis, the postulated evaluation process cannot help being more or less subjective. Some readers may simply regard (3)-(7) as supporting the Eurotunnel's recommendation adding positive value to it. The information inferred becomes necessary only when the evaluative structure above is applied to the text: in this sense the reader imposes a type of interpretation on the text.

TEXT 3

-HEADLINE- (1) New rule to limit risk from BSE

-TEXT- (2)Abattoirs will be banned from splitting cattle skulls to remove head meat as a further safeguard against the 'mad cow' disease BSE, the Government announced. (3)The compulsory ban replaces voluntary guidance against the practice and is aimed at ensuring contaminated brain tissue does not up in food. (4)Slaughter-houses will be told that the brain must be removed in a specialist boning plant or an area where there is no risk of cross-contamination. (5)The Ministry of Agriculture also announced an inquiry into the feed industry.

(6)It has not been proved, but scientists are convinced BSE - responsible for the deaths of more than 20,000 cows - was passed on by protein rations made from contaminated sheep remains.

Status	(2)recommended response attributed to the government	action to be evaluated		
		(1) new rule (will be created) (2)Abattoirs will be banned from splitting cattle skulls to remove head meat (abattoirs must not split cattle skulls) (4)Slaughter-houses will be told that the brain must be removed in a specialist boning plant or an area where there is no risk of cross-contamination.		
Value	(2)desirable consequence attributed to the government (3)desirable consequence averred	bases	+/-	message adding value
		safety	+	(2)as a further safeguard against the 'mad cow' disease BSE (3)The compulsory ban replaces voluntary guidance against the practice and is aimed at ensuring contaminated brain tissue does not up in food.
Status	Implicit	action to be evaluated		
		(if abattoirs split cattle skulls not in an area where there is no risk of cross-contamination)		
Value	Implicit (undesirable consequence)	bases	+/-	message adding value (ground)
		safety	-	(the mad cow disease)

The second set of evaluation in this example is totally implicit. The proposition to be evaluated is inferred from its logically opposite proposition, that is, the government's ban on the current practice. The implicit undesirable consequence can also be inferred from its logical opposites expressed in (2) and (3). It is simply shown as *the mad cow disease* in the above diagram. (5) and (6) are not included in the above analysis since they can be analysed as another set of evaluation. In (5) the proposition *an inquiry is made into the feed industry* is awarded the status of announcement attributed to the Ministry of Agriculture and in (6) the reason for the action is presented adding value to the announcement.

TEXT 4

-HEADLINE- (1) Architecture Update: Cambridge blot banned

-TEXT- (2)CAMBRIDGE University has been banned from building a big new hi-tech sports centre because of the impact it would have on the city's skyline, especially the setting of King's College Chapel.

(3)The proposed building, 600ft long and supported by structural masts rising 70ft into the air, was to have provided athletic tracks, sports pitches and tennis courts.

(4)During the public inquiry the university was told that if allowed to go ahead, it would have been severely criticised for generations to come 'for causing such crass and insensitive damage to an area which is very sensitive'.

(5)But the university argued that without the new centre, its sports facilities would fall well short of other universities.

Status	(1)(2)(4) recommended response attributed to the public inquiry	action to be evaluated		
		(2)Cambridge university not building a big new hi-tech sports centre		
Value	(5)undesirable consequence attributed to CU	bases	+/-	message adding value to the action
		competitive- ness	+	without the new centre, its sports facilities would fall well short of other universities
Status	(recommended response attributed to Cambridge University)	action to be evaluated		
		(Cambridge university building a sport centre) Inferred from (1)(2)		
Value	(1)(2)(4) undesirable consequence attributed to the public inquiry	bases	+/-	message adding value to the action
		environment	-	(1)Cambridge blot (2)its impact on the city's skyline, especially the setting of King's College Chapel
		educational environment	+	(3) The proposed building was to have provided athletic tracks, sports pitches and tennis courts
		environment	-	(4)it would have been severely criticised for generations to come 'for causing such crass and insensitive damage to an area which is very sensitive'

A characteristic trait of this text is that unlike in the previous examples the value of the second set of evaluation includes both desirable and undesirable consequences. This is a characteristic found in a type of text where opposite courses of action have both advantages and disadvantages.

TEXT 5

-HEADLINE- (1)Kazakh nuclear test ban

-BYLINE- By RUPERT CORNWELL

-TEXT- MOSCOW - (2)Environmental protests strengthened further in Kazakhstan as a local authority banned nuclear tests by the Soviet government at Semipalatinsk, for more than 40 years the country's main testing site for its nuclear weapons programme, writes Rupert Cornwell. (3)The decision of the Semipalatinsk regional council, which cited concern for public health and the area's future, follows months of intense protests by inhabitants of the Central Asian republic.

(4)Even more pertinently, it comes just three weeks after a disastrous explosion at a nuclear fuel plant at the east Kazakh town of Ust-Kamenogorsk, 200 miles from Semipalatinsk, in which as many as 120,000 people may have been contaminated with toxic

beryllium oxide gas. (5)Whether the council has the legal power to make such a move is doubtful - and even if it does, it may just be sealing what is already a fait accompli, given Moscow's tacit admission of the pollution and health damage caused by more than 500 above-ground and underground blasts since 1949.

Status	recommended response attributed to Kazak local authority	action to be evaluated		
		(1)(2) nuclear test (must) not be done by the Soviet government at Semipalatinsk		
Value	(2)assessment attributed to the reporter, R.Cornwell (3)support attributed to the inhabitants (4)situational fact and hypothesis as a (more pertinent) support attributed to the reporter (5)averred assessment (5) averred interpretation based on the fact attributed to Moscow	bases	+/-	message adding value to the action
		environment	+	Environmental protests strengthened further in Kazakhstan
		supported by the public	+	(3)the decision follows months of intense protests by inhabitants of the Central Asian republic
		relevance urgency	+	(4) Even more pertinently, it comes just three weeks after a disastrous explosion at a nuclear fuel plant at the east Kazakh town of Ust-Kamenogorsk, 200 miles from Semipalatinsk, in which as many as 120,000 people may have been contaminated with toxic beryllium oxide gas.
		validity	-	(5)Whether the council has the legal power to make such a move is doubtful
validity	-	(5) it may just be sealing what is already a fait accompli, given Moscow's tacit admission of the pollution and health damage caused by more than 500 above-ground and underground blasts since 1949		
Status	(Implicit hypothetical response)	action to be evaluated		
		(nuclear test be done by the Soviet government at Semipalatinsk) inferred from (1)(2)		
Value	(2)Fact as a basis for the hypothetical response attributed to the reporter (3)undesirable consequence attributed to the regional council	bases	+/-	message adding value to the action
		possibility	+	(2) for more than 40 years Semipalatinsk has been the country's main testing site for its nuclear weapons programme
		wellbeing	-	(3) concern for public health and the area's future

TEXT 6

-HEADLINE-(1) MMC stops Rheox deal with Akzo

-BYLINE- By MARY FAGAN, Industrial Correspondent

(2)-TEXT- THE Government has banned the acquisition by Rheox International, a US-based company, of the organoclays business of Akzo Chemical of the Netherlands. (4)The decision follows the conclusion by the Monopolies and Mergers Commission that the proposed deal would be against the public interest. (4)The MMC said the acquisition would have caused reduced competition and higher prices in the market for organoclays, organics and organic pastes used in paints and other solvent-based systems.

(5)The merged company would have had market shares of 92, 36 and 67 per cent, respectively. (6)The other major use of organoclays is oil-based drilling muds for oil and gas extraction, in which Akzo is the major UK supplier to the sector with a 26 per cent market share.

(7)Although Rheox is a much smaller supplier, its parent, Valhi of the US, has other oil-

based mud businesses.

(8)The acquisition would have given the group over half of the overall UK market.

(9)Some drilling and service companies in the North Sea have inhouse organoclays activities, while the others rely on Akzo and Rheox which together would have had 97 per cent of this free market. (10)In its report on the takeover, the MMC said it recognised that the merger could have benefits in terms of economies of scale and technical synergy. (11)However, it said these would not outweigh the detriments to competition and that it could see no way other than stopping the sale of balancing the adverse effects. (12) Peter Lilley, the Secretary of State for Trade and Industry, said he had asked Sir Gordon Borrie, the director-general of Fair trading to seek undertakings that the organoclays part of Akzo would not be allowed to fall into the hands of Valhi or its subsidiaries.

Status	The government's (MMC's) recommended response	action to be evaluated		
		(1-2)Rheox International must not acquire the organoclays business of Akzo Chemical (12) <interpreted as a repetition of the recommendation>		
Value	(5-9) averred evidence (11)desirable consequence attributed to MMC	bases	+/-	message adding value to the action
		(logicality)	+	(5-9) stopping the sale of balancing the adverse effects
Status	(1-2)(Rheox's recommended response)	action to be evaluated		
		(Rheox 's acquires the organoclays business of Akzo Chemical)		
Value	(3-4)undesirable consequence attributed to MMC	bases	+/-	
		public interest	-	(3)it would be against the public interest
	competition cost	-	(4)it would have caused reduced competition, higher price in the market for organoclays, etc.	
	(5-9) averred evidence	(logicality)	-	(5-9)
	(10) desirable consequence attributed to MMC	economies	+	(10) the merger could have benefits in terms of economies of scale and technical synergy
(11) counter-assessment attributed to MMC	competition	-	(11)these would not outweigh the detriments to competition	

Looking at the analysis attempted in this section one may notice that in many cases a statement can be subsumed under either of the two values in the diagram. In such cases one can move the statement from one box of value to the other simply by reversing positive and negative (\pm) though some additional change might be contextually needed. For instance, in Text 6, (3) and (4) have been analysed as adding negative value to the implicit recommendation attributed to Rheox, its acquisition of Akzo Chemical. These sentences can be moved to the first set of evaluation as message adding positive value to the government's recommendation, banning the acquisition. It is important, however, to note that these sentences after the move are not regarded as undesirable consequences any longer: damage to the public interest and reduced competition are not the consequence of banning the acquisition. Now they should be re-evaluated as another element: avoidable consequence

attributed to MMC. The government's ban on acquisition is positively valued on the economic basis since it makes it possible to avoid damage to the public interest, reduced competition and higher cost

3. The evaluative template

All the example texts analysed in the previous section are relatively short newspaper articles. Since they are news articles, most of the statements are not averred by the writer but attributed to other sources of information. Besides, all the examples contain a pair of statements which can be analysed as having the status of attributed recommendation. One of the reasons for this common feature is that the articles were not randomly chosen but were originally selected for the purpose of investigating how speech act verbs included in the headline or the lead of news articles affect the organisation of the whole text. This is why all the example texts include such lexical items as *call for* and *ban* in the first few sentences. Though they were very much limited and controlled in their length, text-type and vocabulary, at least all of them could be analysed in terms of a common template consisting of two sets of status-value. Actually, in many situations where an implicit element is contextually and logically inferred for filling a slot of the template, it can be said that we are imposing the template on the text in order to find some consistency in it rather than the common template happens to result from our interpretation.

The most conspicuous trait common among the example texts is that the same template can be applied to them. The template is presented below with its slots left unfilled.

Status	action to be evaluated		
Value	bases	+/-	message adding value to the action
Status	action to be evaluated		
Value	bases	+/-	message adding value to the action

Below is shown the template which contains some information to represent the type of text dealt with in the previous section.

Status	Recommended Response attributed to A	action to be evaluated		
		Action <i>a</i>		
Value	Desirable Consequence attributed to A	bases	+/-	message adding value to the action
		benefit	+	Action <i>a</i> leads to a rewarding <i>r</i>
Status	Recommended Response attributed to B	incompatible action to be evaluated		
		Action <i>a'</i> (incompatible to <i>a</i>)		
Value	Undesirable Consequence attributed to A	bases	+/-	message adding value
		security	-	Action <i>a'</i> causes harm
	Assessment attributed to B	benefit	+	Action <i>a'</i> produces some profit

4. Logical and functional properties of the frame

In this section the logical property of the template discussed in the previous sections is considered. As was explained in the previous sections it is understood as an evaluative frame that consists of two sets of status-value. I claim that the frame has a special type of logical relation which is generally known as biconditional.

Hunston's theory depends on the basic principle that on the interactive plane the proposition is the object of evaluation and evaluation is partly achieved by awarding the proposition its status. This principle does not preclude us from thinking that some logical relationship may be established between propositions even before they are awarded some status. According to this view the relationship between status and value established in the frame can be reduced at the most abstract level to the relationship between two propositions, which are Symbolically represented here as p and q . Then, the relationship between status (e.g. a recommendation) and value (e.g. its desirable consequence) in the frame may be represented in terms of propositional logic as $p \rightarrow q$, which roughly means *if p then q*.

It is important to pay attention to the relationship between the two sets of status and value. Between the two statuses is established opposition or contradiction: for instance, the incompatible relationship between alternative recommendations. Because of this contradictory relation between the two statuses, a statement that adds positive value to a status can be considered to add negative value to the other status. This means that if one set of status-value relation is represented as $p \rightarrow q$, the other is represented as $not\ p \rightarrow not\ q$.

The relationship between the two sets of status-value in the frame can also be understood in terms of two alternative courses of action. Both courses of action are evaluated: most typically, one is positively valued to be chosen while the other negatively. Whichever course of action is chosen, once choice is made, the alternative that was not chosen must be given up. In terms of the symbolic description, the choice is between $p \rightarrow q$ and $not\ p \rightarrow not\ q$. If one of them is chosen or judged to be true, the other must be discarded or judged to be false.

I claim that such an intuitive interpretation of the frame is best represented by the logical formula $(p \rightarrow q) \& (not\ p \rightarrow not\ q)$. Truth table tells us that this formula is valid only in two cases: either when both p and q are true or when both $not\ p$ and $not\ q$ are true.⁶ In all the other cases it is invalid. This truth value assignment means that the formula is a representation of the logical relation generally known as biconditional.

As has already been repeated several times Hunston separates proposition and status. If we assume that the logical formula has some function at the beginning of the comprehension process, the reader's task is to semantically specify the abstract formula. This task includes identifying propositions that function as the elements of the formula and then assigning status and value to each proposition.

Accordingly, we can modify the frame presented in the previous section with logical property of each slot shown:

⁶ The meaning of biconditional is represented in terms of its truth table:

p	q	not p	not q	$p \rightarrow q$	$not\ p \rightarrow not\ q$	$(p \rightarrow q) \& (not\ p \rightarrow not\ q)$
T	T	F	F	T	T	T
T	F	F	T	F	T	F
F	T	T	F	T	F	F
F	F	T	T	T	T	T

Status	action to be evaluated		
	if p		
Value	bases	+/-	message adding value to the action
			then q
Status	action to be evaluated		
	if not p		
Value	bases	+/-	message adding value to the action
			then not q

The onus is on me to explain the reason why this particular logical formula is presumed to be brought into the comprehension process as a frame. I claim that biconditional is a logical relation which reflects the communicative intention of sharing a norm. As was mentioned above biconditional makes it necessary that affirming p entails affirming q , or affirming *not* p entails affirming *not* q . This can be interpreted as a logical description of a norm. If p is affirmed and q is denied, the truth-value assignment deviates from the norm. In the same way, if *not* p is affirmed and *not* q is denied, it breaches the norm.

To illustrate this point at a more concrete level of specification, it would be useful to refer to one example of a norm-setting in a real text. In Text 1, the writer is assumed to be trying to set a norm: p (*setting up a fresh contingency legal aid fund*) must entail q (*more people can afford justice*) and *not* p entails *not* q . If the actual establishment of the contingency legal aid fund does not bring about the expected result, it is said that the reality deviates from the norm. Similarly, if more people can afford justice in spite of the fact that no fund was established, the reality deviates from the norm.

The norm-setting function of biconditional can also be illustrated in comparison with other types of logical relation such as $p \rightarrow q$ and $p \& q$. The logical relation $p \rightarrow q$, which is included as one of the elements constituting biconditional, has a different truth table. It is valid even when p is false and q is true. This means that truth value of q cannot be infallibly predicted on the basis of the truth value of p . The logical relation $p \& q$ is invalid when both p and q are false, or when *not* p and *not* q are true. This rejects the chance that a norm can remain valid even when its propositions do not materialize.

Norms in the present discussion are considered to be something that enables us to predict on the basis of the truth value of one proposition what truth value is to be assigned to the other proposition that is linked with it. It is this feature of norms that is represented by biconditional.

5. Conclusion

In this paper I have postulated that in the comprehension process the reader imposes on the text a frame of which slots are related to each other by the logical relation generally known as biconditional. It has been assumed that the reader fills the slots with appropriate propositions that are retrieved directly from the text or inferred from the context. These propositions are evaluated in terms of status and value on the interactive plane.

I have further claimed that the biconditional relation postulated in this paper represents the communicative intention on the part of the writer to share a norm with the reader. In other words, by means of completing a consistent frame the reader can understand the writer's communicative intention.

The terms *frame* and *schema* are used in various senses by different researchers. It is relatively rare to use them for a certain logical relation as I have done in this paper.

Hunston's view that evaluating a proposition partly means awarding it a status so as to make it a discourse entity was crucial to the development of my idea at least in two ways.

First, it enabled me to notice that the same proposition can be evaluated variously by being awarded different statuses: for example, the proposition the-university-builds-a-new-building can be awarded many different statuses: *a recommendation of a solution*, *a report of fact*, *a question about a situation*, *a declaration of a plan*, and so forth. *The university built a new building* and *The committee claims that the university should build a new building* can be analysed as sharing the same proposition but differing in the status assigned: *averred fact* and *attributed recommendation*. Separating proposition and its evaluative element in this way increases the types of text that could be dealt with systematically. Unlike in the case of theories oriented towards factual reports such as Hoey's, there is no need to decide, for instance, whether a plan can be regarded as the solution element of the problem-solution pattern or it should be regarded only as a half-solution since it has not materialized yet. It may simply be explained away as two different statuses assigned on the interactive plane: *a factual report* and *a recommendation*. Specification of status like this also has an advantage of making the illocutionary force of the sentence explicit.

The second way Hunston's view influenced on my idea is actually more important and relevant to the main point I have made in this paper: the biconditional relation among propositions. As a natural consequence of Hunston's theory, it has become important to identify relations prevalently observed between status and value such as *recommendation-justification*, *assessment-evidence*, *theory-criticism*, etc. Though the relationship among sentences has been illustrated as that established between two members, it is rare to posit a more complex network among sentences. Of course, that is not surprising since the theory explains evaluation mainly as the relation between the two members: status and value. Looking upon status and value as a type of binary relation, however, I started thinking that binary relation rather than a single proposition can be posited as a target of evaluation at the most abstract level. That is to say, the most abstract propositions, which might be symbolically represented as p and q , function as schematic slots of binary relation and they are filled with more specific propositions retrieved from the text.

The notion of binary relation or clause relation was used as the minimum unit of text analysis by Eugene Winter (1977). He explains that the presence of one of the two clauses that are connected in binary relation necessitates the presence of the other in the same text. This explanation of binary relation reminds us of the characteristic of biconditional: it is valid only in two cases, either when both p and q are true (both *not p* and *not q* are false) or when both *not p* and *not q* are true (both p and q are false). To say that one member necessitates the other seems to be the same as saying that if p is true it is necessary for q to be true. Though the biconditional frame in this paper has been presented in the formula $(p \rightarrow q) \ \& \ (not \ p \rightarrow not \ q)$, biconditional in propositional logic is conventionally represented as $p \leftrightarrow q$. This symbolic representation of biconditional might be considered to correspond to the two-membership representation of binary relation. It might be concluded that the biconditional frame is one of the logical representations of binary relation and that it reflects the logical property of the communicative intention to share a norm between the writer and the reader.

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