An Analysis of Textual Patterns and Pattern Signalling in Written Text

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1. Introduction

Current research in textual organisation at the level of discourse, has tended to focus on the explicit signalling of common textual patterns within the text. Unfortunately, much of this research, Hoey (1994) as an example, has been based on written texts which are comparatively short with clear textual patterning often of only a single kind.

Here, a longer, more complex written discourse was investigated with the aim of demonstrating not only how textual patterns are signalled, but also how they combine to successfully transmit the writer's intended message to the intended audience. The original text is given in Appendix A, with sentences numbered to assist referencing.

2. Intended audience and genre

In order to understand why the writer organised the text as s/he did and the particular lexis chosen, it was essential to establish in what context and for whom the text was originally written. Unfortunately, in the case of the text here, it had yet to be published and so it was only possible to speculate as to the answers to these questions. However, as Coulthard (1994) notes, all texts are written with an 'imaginary reader' in mind. Therefore, by examining the text here, clues to the author's 'imaginary reader' can be identified, and subsequently, the identity of the 'real reader' proposed. In a similar way, lexical signals and the register of the text can provide clues to the text's context and genre (McCarthy, 1991).

Briefly viewing the text, it was clear that the level of difficulty of vocabulary used was quite high. Words like *'palaeontologists'* in the first line, and *'constitute', 'exhibited'* and *'typify'* found in sentences 2, 6 and 7, suggested that this was written for an adult audience. The use of the word 'thus' in line 37 of the essay is strongly associated with academic papers and with the large amount of technical and Latin terminology found throughout, e. g. '3 million years B. P.' (sentence 3), it could be interpreted that this was an academic paper for perhaps students of anthropology.

However, other clues suggested a different audience. Although Latin terminology and technical terms were used, many of the meanings were explained in simpler terms

e. g. 'ventro-ventral' (face to face, literally 'belly-to-belly') in sentence 17. These signs suggested, therefore, that the essay was perhaps written for a more general audience. Many of the lexical items and verb structures indicated that the writer here adopted a very formal register. Expressions such as 'according to...' and 'however' were used in place of more informal expressions like '...says' and 'but', and there were many uses of the passive form.

From the above observations, it could therefore be speculated that this was an academic style essay written for a general, intelligent adult reader. Maybe such an essay would be found in a magazine such as 'Time' or 'New Scientist'. A lack of references in the essay, usually included in standard academic papers, and the length of the text, (academic papers on this topic would generally be longer) were also supportive of this conclusion.

3. Overview of text

Looking at the text in more detail showed that a large proportion of the content was concerned with two alternative theories as to the evolutionary development of human beings. All texts show some kind of textual patterning and here also, it was anticipated that certain cultural conventions would be obeyed. Indeed, analysis showed that structuring of the text generally followed the Claim-Counterclaim textual pattern (McCarthy, 1991), common in compare and contrast essays of this kind.

However, considering this was written for a magazine such as 'New Scientist, it is unlikely that the article would simply present two opposing theories without expressing some kind of preference for one or the other, in implicit or explicit terms. Looking for structuring which would allow the writer to indicate preference, revealed a sub-structure in the text, namely the Problem-Solution pattern, described in detail by Hoey (1994) [1].

However, a cautionary note should be made. These are only interpretations as to the structure of the essay, and indeed, other interpretations are possible, as McCarthy (1991:161) states,

> "Finding patterns in texts is a matter of interpretation by the reader, making use of clues and signals provided by the author ;it is not a question of finding one single RIGHT answer, and it will often be possible to analyse a given text in more than one way."

4. A detailed description of the text as a Claim-Counterclaim pattern

The Claim-Counterclaim pattern, as mentioned above, tends to be found in political journalism, letters-to-the-editor pages of newspapers, and academic 'compare and

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1) The Problem-Solution pattern being perhaps the most common textual pattern, particularly in the West, has subsequently received the most attention. For further information on its signalling and organisation, see Hoey (1983), Jordan (1984).

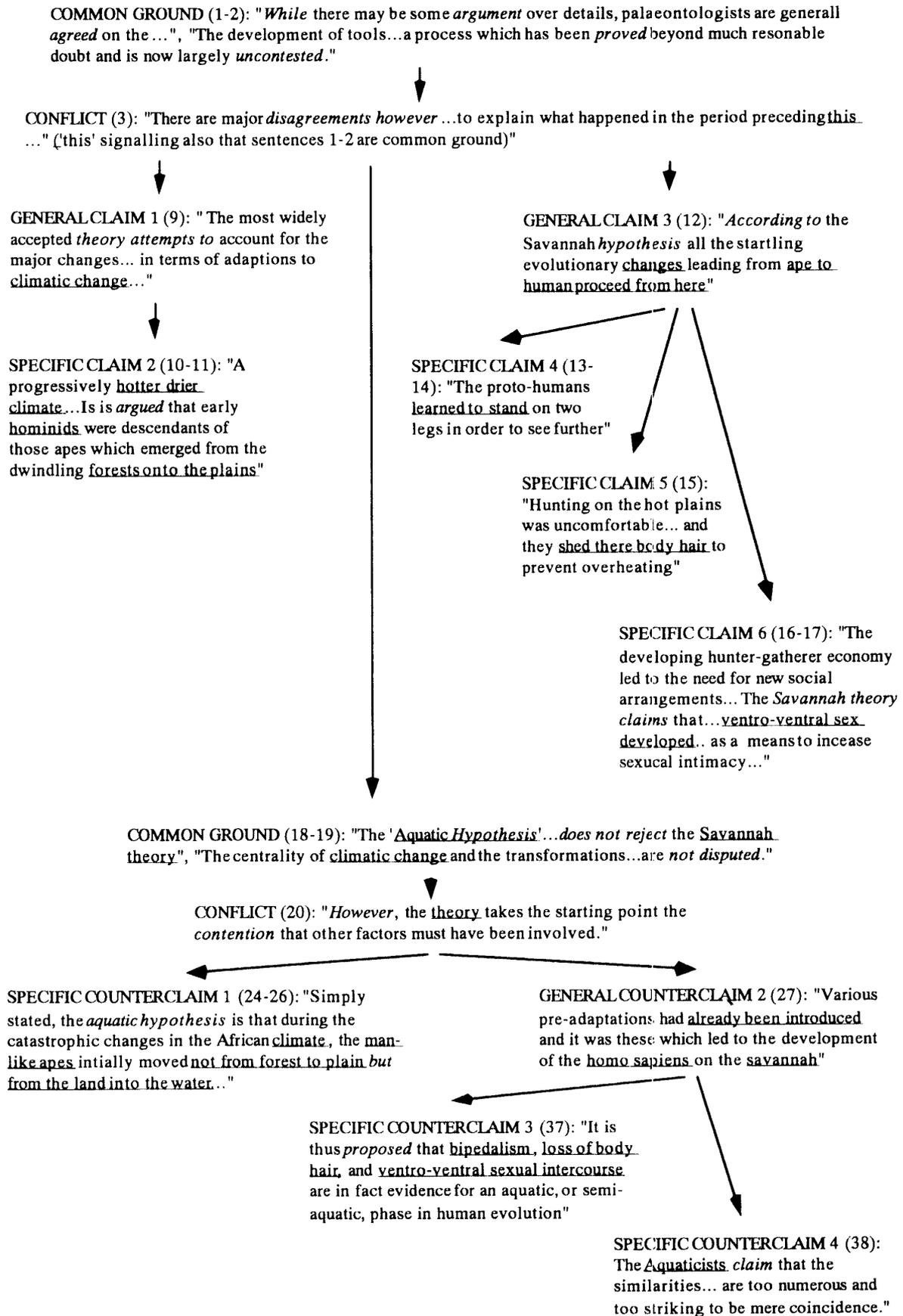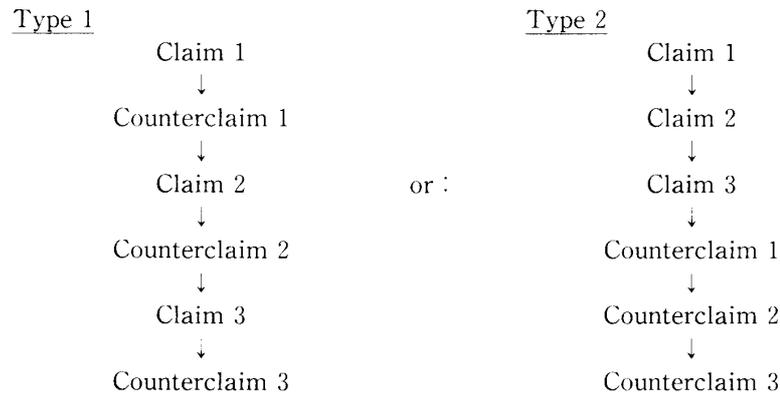Fig. 1   Diagrammatic structure of the Claim-Counterclaim pattern

COMMON GROUND (1-2): "*While* there may be some *argument* over details, palaeontologists are generall *agreed* on the...", "The development of tools...a process which has been *proved* beyond much resonable doubt and is now largely *uncontested*."

CONFLICT (3): "There are major *disagreements however* ...to explain what happened in the period preceding this ..." ('this' signalling also that sentences 1-2 are common ground)"

GENERAL CLAIM 1 (9): " The most widely accepted *theory attempts to* account for the major changes... in terms of adaptions to climatic change..."

GENERAL CLAIM 3 (12): "*According to* the Savannah *hypothesis* all the startling evolutionary changes leading from ape to human proceed from here"

SPECIFIC CLAIM 2 (10-11): "A progressively hotter drier climate...Is is *argued* that early hominids were descendants of those apes which emerged from the dwindling forests onto the plains"

SPECIFIC CLAIM 4 (13-14): "The proto-humans learned to stand on two legs in order to see further"

SPECIFIC CLAIM 5 (15): "Hunting on the hot plains was uncomfortable... and they shed there body hair to prevent overheating"

SPECIFIC CLAIM 6 (16-17): "The developing hunter-gatherer economy led to the need for new social arrangements... The *Savannah theory claims* that...ventro-ventral sex developed.. as a means to incease sexucal intimacy..."

COMMON GROUND (18-19): "The '*Aquatic Hypothesis*'...*does not reject* the Savannah theory", "The centrality of climatic change and the transformations...are *not disputed*."

CONFLICT (20): "*However*, the theory takes the starting point the *contention* that other factors must have been involved."

SPECIFIC COUNTERCLAIM 1 (24-26): "Simply stated, the *aquatic hypothesis* is that during the catastrophic changes in the African climate, the man-like apes intially moved not from forest to plain *but* from the land into the water..."

GENERAL COUNTERCLAIM 2 (27): "Various pre-adaptations had already been introduced and it was these which led to the development of the homo sapiens on the savannah"

SPECIFIC COUNTERCLAIM 3 (37): "It is thus *proposed* that bipedalism, loss of body hair, and ventro-ventral sexual intercourse are in fact evidence for an aquatic, or semi-aquatic, phase in human evolution"

SPECIFIC COUNTERCLAIM 4 (38): The Aquaticists *claim* that the similarities... are too numerous and too striking to be mere coincidence."

Fig. 2   Two common Claim-Counterclaim pattern structures

Type 1   Type 2

Claim 1   Claim 1
↓   ↓
Counterclaim 1   Claim 2
↓   ↓
Claim 2   or :   Claim 3
↓   ↓
Counterclaim 2   Counterclaim 1
↓   ↓
Claim 3   Counterclaim 2
↓   ↓
Counterclaim 3   Counterclaim 3

contrast' essays (1995; McCarthy, 1991). It was therefore, quite appropriate in this case. The pattern can generally be distinguished as having 4 main elements, these being 'common ground', 'conflict', 'claim' and 'counterclaim' although the ordering of these will often depend on the emphasis given to the claims and counterclaims, the purpose, and even the length of the text in question.

Figure 1 details the structuring of the Claim-Counterclaim pattern as it was found in the text here. Note that elements are indicated in capitals, key lexical signalling in italics, and lexis used for overall cohesion of elements underlined. Figures in brackets refer to sentence numbers.

From the diagram, several points can be made.

1) In general, essays adopting the Claim-Counterclaim pattern tend to fall into one of 2 categories, type 1, where individual claims are matched with counterclaims, and type 2, where a set of claims is followed by a set of counterclaims. See fig. 2. From the diagram in fig. 1, we can see that here the text was of type 2, generally more common in longer essays. Type 2 structuring was particularly useful here since not all claims could be matched with counterclaims.

2)˙ Within the Claim-Counterclaim pattern can be identified further structuring using a General-Specific pattern (McCarthy, 1991; Coluthard, 1994) [2]. As described by Coulthard, texts are frequently organised around this pattern to present a series of ideas in a clear, logical manner. We can see, for example, the use of 'enumerables' (Tadros, 1985) a common way to signal the General-Specific pattern, to structure the specific claims 4, 5 and 6. Thus, "*all the startling evolutionary changes* leading from ape to human proceed from here", is linked with "the proto humans *learned to stand*", "*they shed most of their body hair*", and "ventro-ventral sex *developed*".

3) If the Claim-Counterclaim pattern is used in a totally unbiased manner, simply reporting the existence of a set of 'claims' and 'counterclaims', it could be argued that

2) Coulthard uses the term 'General/Particular' although the two are analogous.

it would not be sufficient in order to achieve the secondary purpose of signalling preference for one of the theories given. However, the element 'common ground' can be used to vary the emphasis of the overall essay, by positioning it before or after certain claims or counterclaims.

Here, 'common ground' was signalled twice. In the first case, it presented the current state of research into human evolutionary development, implicitly signalling that opposing views would follow. However, the second instance of common ground' serves a different purpose, clarifying exactly where the two theories agree. The positioning here of agreement with the first set of claims followed by opposing counterclaims, creates an overall emphasis on the difference between the two theories. Clearly, before a preference can be given, there must be an emphasis on difference rather than similarity and the positioning here of 'common ground' achieves this.

4.1 Signalling of the Claim-Counterclaim pattern

As described by McCarthy (1991), words are often associated with certain elements of textual patterns, their purpose being to organise and structure the discourse. Lists of these 'discourse-organising' words have been compiled by Jordan (1984) and Winter (1977,1978) among others, and can be of great help in identifying textual elements. In the text here, 'discourse organising' words associated with the Claim-Counterclaim pattern were found, giving support to the model proposed. See figure 3.

Contrastive discourse markers, common in the Claim-Counterclaim pattern (Holland & Lewis), were also detected, e. g. *however, but, without, nor unlike.*

4.2 Lexical cohesion

Apart from the lexical signalling of certain elements of a textual pattern, for a text to be coherent the elements must also be related either explicitly or implicitly. One of the main ways in which text elements are related is through 'reiteration' described in detail by Halliday and Hasan (1976).
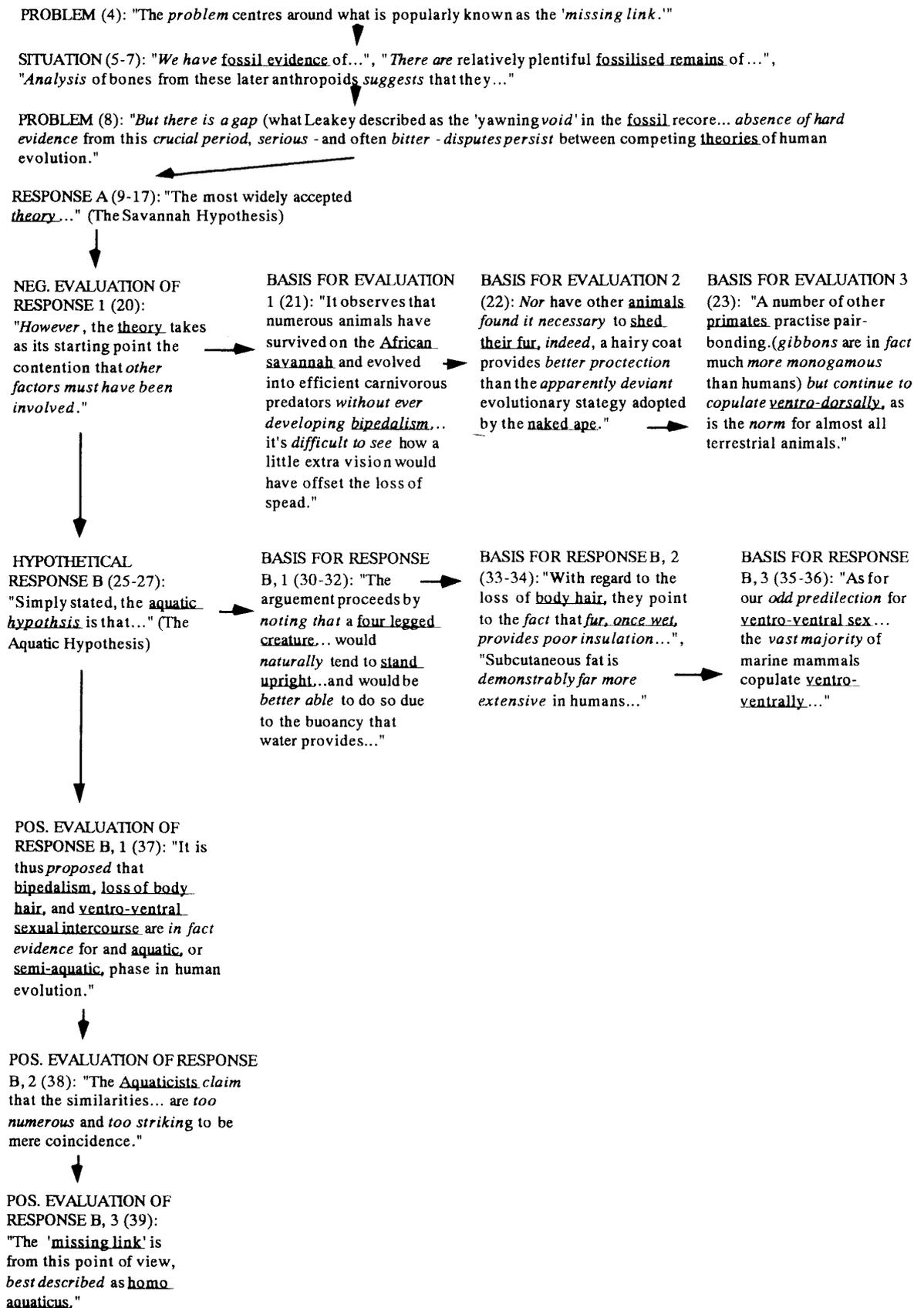
In the text here, lexical cohesion of this sort can be seen to play an important role in linking the elements of the Claim-Counterclaim pattern.For example, 'theory' and its hyponym 'hypothesis' are reiterated in the text to link general claims to counterclaims. The three words 'bipedalism', 'body hair' and 'ventro-ventral sex' are reiterated through direct repetition and lexical relations (McCarthy, 1991), to signal the specific claims and counterclaims. Other cases can also be identified.

Finally, matching relations, described by Winter (1994) are used to relate different elements to produce a cohesive text. One example relating the specific claim 2 and

Fig. 3   Discourse organising words indicating the Claim-Counterclaim textual pattern

Common ground:	agreed, proved uncontested
Conflict:	disagreements, disputes, reject
Claim/Counterclaim:	theory, account, argued, hypothesis, claims, argument, contention, proposed, in fact.

Fig. 4   Diagrammatic structure of the Problem-Solution pattern

PROBLEM (4): "The *problem* centres around what is popularly known as the *'missing link.'*"

SITUATION (5-7): "*We have* fossil evidence *of...*", "*There are* relatively plentiful fossilised remains *of...*", "*Analysis* of bones from these later anthropoids *suggests* that they..."

PROBLEM (8): "*But there is a gap* (what Leakey described as the 'yawning *void*' in the fossil recore... *absence of hard evidence* from this *crucial period, serious* - and often *bitter* - *disputes persist* between competing theories of human evolution."

RESPONSE A (9-17): "The most widely accepted theory..." (The Savannah Hypothesis)

NEG. EVALUATION OF RESPONSE 1 (20):	BASIS FOR EVALUATION 1 (21):	BASIS FOR EVALUATION 2 (22):	BASIS FOR EVALUATION 3 (23):
"*However*, the theory takes as its starting point the contention that *other factors must have been involved*."	"It observes that numerous animals have survived on the African savannah and evolved into efficient carnivorous predators *without ever developing* bipedalism... it's *difficult to see* how a little extra vision would have offset the loss of spead."	*Nor* have other animals *found it necessary* to shed their fur, *indeed*, a hairy coat provides *better proctection* than the *apparently deviant* evolutionary stategy adopted by the naked ape."	"A number of other primates practise pair-bonding.(*gibbons* are in *fact* much *more monogamous* than humans) *but continue to copulate* ventro-dorsally, as is the *norm* for almost all terrestrial animals."

HYPOTHETICAL RESPONSE B (25-27):	BASIS FOR RESPONSE B, 1 (30-32):	BASIS FOR RESPONSE B, 2 (33-34):	BASIS FOR RESPONSE B, 3 (35-36):
"Simply stated, the aquatic hypothsis is that..." (The Aquatic Hypothesis)	"The arguement proceeds by *noting that* a four legged creature... would *naturally* tend to stand upright...and would be *better able* to do so due to the buoancy that water provides..."	"With regard to the loss of body hair, they point to the *fact* that *fur, once wet, provides poor insulation...*", "Subcutaneous fat is *demonstrably far more extensive* in humans..."	"As for our *odd predilection* for ventro-ventral sex... the *vast majority* of marine mammals copulate ventro-ventrally..."

POS. EVALUATION OF RESPONSE B, 1 (37): "It is thus *proposed* that bipedalism, loss of body hair, and ventro-ventral sexual intercourse are *in fact evidence* for and aquatic, or semi-aquatic, phase in human evolution."

POS. EVALUATION OF RESPONSE B, 2 (38): "The Aquaticists *claim* that the similarities... are *too numerous* and *too striking* to be mere coincidence."

POS. EVALUATION OF RESPONSE B, 3 (39): "The 'missing link' is from this point of view, *best described* as homo aquaticus."

specific counterclaim 1 is the matching contrast of "early hominids were descendants of those apes which emerged from the dwindling forests onto the plains" and "the man-like apes initially moved not from forest to plain but from the land into the water." As can be seen from the above, therefore, signalling of the Claim-Counterclaim pattern was extensive and explicit.

5. A detailed description of the text as a Problem-Solution pattern

The Problem-Solution pattern being perhaps the most common textual pattern, particularly in the West, has subsequently received the most attention in the literature (Holland & Lewis). In its fullest form, four elements of structure can be identified, these being 'situation', 'problem', 'response' or 'solution', and 'evaluation'. However, the structure can, and often is, reduced to contain as little as a single element. (Jordan, 1984).

Figure 4 details the structure for the text here, with similar notation as in Figure 1.

Again several points can be made.

1) In the text here, the full structuring of the Problem-Solution pattern was adopted, however, a recursive loop in the form of a series of possible responses is also introduced (Hoey 1994). First, the dispute between different theories was presented as a situation in which there was a problem. Next, the 'Savannah Hypothesis was presented as a possible solution, but with a negative evaluation. Finally the 'Aquatic Hypothesis' was proposed and given a positive evaluation. In this way, the writer achieved the secondary purpose of the text, i. e. signalling to the intended audience a preference for the 'Aquatic Hypothesis'.

2) As there was a change in structure from Claim-Counterclaim to Problem-Solution it was necessary to carefully signal this to the reader, otherwise the text may have become difficult to follow. This was achieved by stating the existence of a problem prior to giving the situation, a technique described by Hoey (1994). Note, that here the signalling was quite explicit, the writer including the word 'problem' (sentence 4).

3) Jordan (1984:90) comments that the "most effective evaluations combine assessment with basis, the thinking assessment being given at least a reasonable basis by the supporting evidence provided." In the text here, the writer also chose this structuring to present a convincing negative evaluation of the 'Savannah theory'. Notice, however, that the evaluation was presented within the context of the 'Aquatic Hypothesis'. e. g. "The theory takes as its starting point the contention that... " (sentence 20), and "It observes that... " (sentence 21). By keeping a distance from the dispute while implicitly signalling personal views, the writer was able to present a very persuasive argument.

4) Although both the theories have yet to be proven, the 'Aquatic Hypothesis' was given more scientific weight by presenting its ideas within the Hypothetical-Real textual pattern, as described by Winter (1994)[3], e. g. "with regard to body hair, they

Fig. 5   Discourse organising words indicating the Problem-Solution textual pattern.

Problem: gap, void, absence, crucial, dispute, persist, difficult

Response: account for, noting, fact, demonstrably, contention, theory, hypothesis, claim

Evaluation   too numerous, too striking, coincidence, best, evidence, exceptions

point to the fact that fur, once wet, provides poor insulation... " (sentence 33). The structure can also be seen in sentences 36 and 37. Here, a logical sequence if-clause in sentence 36, a common signal of hypothesis (Winter, 1994), was combined with a scientific fact in sentence 37, as shown below.

logical sequence if-clause (Hypothesis): "If humans are seen as 'aquatic apes' then the practice no longer appears unusual."

scientific fact (Real): "The vast majority of marine mammals copulate ventro-ventrally, and the exceptions are largely those species which come ashore to mate."

On the contrary, little scientific evidence was offered in support of the 'Savannah theory', signalling again that the 'Aquatic Hypothesis' was the preferred theory.

5.1 Signalling of the Problem-Solution pattern

Again, 'discourse organising' words were used to effectively signal the Problem-Solution pattern, as illustrated Figure 5.

Although the lists created by Jordan (1984) and others contain no lexical discourse organising words associated with 'situation', 'situation' was successfully signalled by the verb tense used, namely the simple non-past form. As Hoey (1994:37) notes, situation is generally relating to a period of time rather than a specific point in time and so this is an appropriate tense for this element. e. g. 'we have', 'there are', 'analysis suggests' in sentences 5, 6, and 7 respectively.

A change in tense from single non-past to simple past, also helped to signal a change in element from 'situation' to 'response', and contrastive discourse markers, detailed earlier, could be seen as further signalling of the 'evaluation' element.

We can see therefore, that although the Problem-Solution pattern was only a sub-structure of the text, its elements were nethertheless signalled in an explicit way.

5.2 Lexical cohesion in the Problem-Solution pattern

As in the Claim-Counterclaim pattern, lexical cohesion of the elements of the Problem-Solution is again achieved through the use of reiteration, for example, in the negative evaluation of the 'Savannah Hypothesis', the synonyms and hyponyms of the three words 'bipedalism', 'body hair' and 'ventro-ventral sex' are again reiterated to link the element with specific claims made as part of the Claim-Counterclaim pattern.

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3) In the literature, occasionally the General-Specific textual pattern and the Hypothetical-Real textual pattern are treated as analogous. (See McCarthy, 1991). Here, however, they are seen as quite different structures.

6. Conclusion

As can be seen from the analysis above, textual patterns played a key role in the successful transmisson of the writer's intended message to his or her intended audience. However, as the analysis shows, the writer not only adopted these textual patterns but skilfully combined them, signalling explicitly to the reader the individual elements.

Appendix A-The 'Evolution' Text used for the analysis

"(1) While there may be some argument over details, palaeontologists are generally agreed on the developments that human beings underwent on the African plains from the emergence of *Australopithecus* about 3.7 million years ago. (2) The development of tools, of a hunter-gatherer economy, and of radically new social structures constitute a process which has been proved beyond much reasonable doubt and is now largely uncontested. (3) There are major disagreements, however, amongst those attempting to explain what happened in the period immediately preceding this-the astonishing transition from 'man-like ape' to the 'ape-like men' of 3 million years B. P.

(4) The problem centres around what is popularly known as the 'missing link'. (5) We have fossil evidence of man-like apes (*Ramapithecus*) which lived in the East African Rift Valley around 9 million years ago. (6) There are relatively plentiful fossilised remains of *Australopithecus, Homo Habilis* and *Homo Erectus,* from the same area and dating from 3.7 million years B. P. onwards. (7) Analysis of bones from these later anthropoids suggests that they already exhibited many of the features which typify modern man:they were, for example, bipedal. (8) But there is a gap (what Leakey described as the 'yawning void') in the fossil record for the intervening 5 million years and, in the absence of hard evidence from this crucial period, serious-and often bitter-disputes persist between competing theories of human evolution.

(9) The most widely accepted theory attempts to account for the major changes in proto-human physiology in terms of adaptations to climatic change on the African continent at the time. (10) A progressively hotter, drier climate and the consequent replacement of forests by grassy plains (*savannah*) over large areas of the land mass mass meant that certain species of ape were gradually deprived of what had been their natural environment. (11) It is argued that early hominids were descendants of those apes which emerged from the dwinding forests onto the plains-a move which inevitably meant alterations in diet, precipitating a development from vegetarian to carnivore and, ultimately, to hunter.

(12) According to the 'Savannah Hypothesis', all the startling evolutionary changes leading from ape to human proceed from here. (13) The proto-humans learned to stand on two legs in order to see further-providing 'early warning' of the approach of predators across the plain. (14) Standing upright left their hands free to make tools and-as their tool-making skills progressed-bipedalism had further advantages, since they could now run after prey and carry weapons at the same time. (15) Hunting on the hot plains was uncomfortable for creatures which had evolved in the shady forest, and

they shed most of their body hair to prevent overheating. (16) The developing hunter-gatherer economy led to the need for new social arrangements-particularly regarding the care of the young-which made monogamous 'pair-bonding' a positive survival behaviour. (17) The savannah theory claims that ventro-ventral (face-to-face, literally 'belly-to-belly') sex, which is almost unheard-of among other primates, developed as a means to increase sexual intimacy and thus cement the pair-bond.

(18) The 'Aquatic Hypothesis'-originally put forward by Sir Alister Hardy and more recently associated with Elaine Morgan* -does not reject the savannah theory as such. (19) The centrality of climatic change and the transformations undergone on the savannah from 3 million years BP onwards are not disputed. (20) However, the theory takes as its stating point the contention that other factors must have been involved. (21) It observes that numerous animals have survived on the African savannah and evolved into efficient carnivorous predators without ever developing bipedalism:after all, four legs are generally much faster than two and in evolutionary terms it's difficult to see how a little extra vision would have offset the loss of speed. (22) Nor have other animals found it necessary to shed their fur;indeed, a hairy coat provides better protection against both daytime sun and night-time cold than the apparently deviant evolutionary strategy adopted by the 'naked ape'. (23) A number of other primates practise pair-bonding (gibbons are in fact much more strictly monogamous than humans) but continue to copulate ventro-dorsally, as is the norm for almost all terrestrial animals.

(24) It is not, however,the norm for marine creatures, and it is this insight which lies at the heart of the aquatic theory. (25) Simply stated, the aquatic hypothesis is that during the catastrophic changes in the African climate, the man-like apes initially moved not from forest to plain but from the land into the water-just as the precursors of modern marine mammals must at one time have done. (26) Unlike the ancestors of the whale and the dolphin, these proto-humans later moved back onto dry land, but the creatures which emerged from the water were much changed. (27) Various pre-adaptations to the physiological differences between them and other primates had already been introduced, and it was these which led to the development of *homo sapiens* on the savannah.

(28) In their account of bipedalism, proponents of the aquatic theory stress the fact that no mammal-with the single exception of man-has ever developed the habit of walking and running on two feet, with its spine perpendicular to the ground. (29) Even those which do occasionally stand on their hind legs (and it is admitted that this constitutes an advantage for spotting predators on the plain) invariably drop back onto all fours in order to run. (30) The argument proceeds by noting that a four-legged creature, during the initial stages of adaptation to an aquatic environment, would naturally tend to stand upright in order to keep its head out of the water to breathe, and that it would be better able to do so due to the buoancy that water provides. (31) A prolonged period (we are talking here about several million years) standing in, and/ or 'treading' water would result in a shift in the creature's centre of gravity, in the

development of a more flexible spine, and in an altered pelvic structure. (32) All these would make it more difficult for such an animal to revert to quadropedalism on its return to a terrestrial existence.

(33) With regard to the loss of body hair, they point to the fact that fur, once wet, provides poor insulation, this purpose being far better served by fat *under* the skin- hence the thick layer of blubber in relatively hairless marine mammals like the whale, and a lot of subcutaneous fat in wallowing creatures like the hippopotamus and pig. (34) Subcutaneous fat is demonstrably far more extensive in humans than in any other ape, indeed *homo sapiens* is the only primate which lays down surplus fat in a layer under its skin. (35) As for our odd predilection for ventro-ventral sex, the aquatic contention is that this in only peculiar in land-dwelling animals: if humans are seen as 'aquatic apes' then the practice no longer appears unusual. (36) The vast majority of marine mammals copulate ventro-ventrally, and the exceptions are largely those species which come ashore to mate.

(37) It is thus proposed that bipedalism, loss of body hair, and ventro-ventral sexual intercourse are in fact evidence for an aquatic, or semi-aquatic, phase in human evolution. (38) The aquaticists claim that the similarities between human beings and their marine relatives (a number of other shared features include the shedding of tears and a diminution in the olfactory sense) are simply too numerous and too striking to be mere coincidence. (39) The 'missing link' is, from this point view,best characterised as *home aquaticus*."

 * see Morgan's *The Descent of Woman* (1972), *The Aquatic Ape* (1982) and *The Scars of Evolution* (1990). Written by Robert Holland, University of Birmingham, U. K.

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