GENRE  ANALYSIS

of

System Description

for

Pallet Handling Machine

Handelshøjskolen i Århus

The Aarhus School of Business

2005
Table of Contents

1. Introduction
   1.1 Working with the Company and the Texts  
   1.2 The Objective of this Paper  
   1.3 Structure and Content  

2. Theory and Method
   2.1 Method and Working Process  
   2.2 Defining Genre  
      2.2.1 Swales: Genre Defined  
      2.2.2 Bhatia: Defining Non-fictional Genre  
      2.2.3 Other Views of Relevance  
   2.3 Genre Analysis  
      2.3.1 Bhatia: Function of Orientation  
      2.3.2 The Genre Analysis Model: Background  
      2.3.3 Step 1: Placing the Given Genre-text in a Situational Context  
      2.3.4 Step 2: Surveying Existing Literature  
      2.3.5 Step 3: Refining the Situational/Contextual Analysis  
      2.3.6 Step 4: Selecting Corpus  
      2.3.7 Step 5: Studying the Institutional Context  
      2.3.8 Step 6: Levels of Linguistic Analysis  
         2.3.8.1: Level 1: Analysis of Lexico-grammatical Features  
         2.3.8.2: Level 2: Analysis of Text-patterning or Textualisation  
         2.3.8.3: Level 3: Structural Interpretation of the Text-genre  
      2.3.9 Step 7: Specialist Information in Genre Analysis  
   2.4 Summary: Relevance and Decision-making  

3. Description of Relevant Text Material
   3.1 Text A1: “Description of the Pallet Handling Crane”  
   3.2 Text A2: “Description of the Pile Preparing Machine”  
   3.3 Text A3: “List of spare Parts”  
   3.4 Text A4: “Functional Description for Phase 2 Delivery Section”
4. Analysis

4.1 Analysing Text: Order and Process
   4.1.1 Step 1: Placing the Given Genre-text in a Situational Context
   4.1.2 Step 2: Surveying Existing Literature
   4.1.3 Step 3: Refining the Situational/Contextual Analysis
   4.1.4 Step 4: Selecting Corpus
   4.1.5 Step 5: Studying the Institutional Context
   4.1.6 Step 6: Levels of Linguistic Analysis
      4.1.6.1: Level 1: Analysis of Lexico-grammatical Features
      4.1.6.2: Level 2: Analysis of Text-patterning
      4.1.6.3: Level 3: Structural Interpretation of the Text-genre
   4.1.7 Step 7: Specialist Information in Genre Analysis

5. Discussion

5.1 Evaluation of the General Analysis, Steps 1-5
5.2 Evaluation of Step 6: Lexico-grammatical Analysis
5.3 Evaluation of Step 6: Analysis of Text-patterning
5.4 Evaluation of Step 6: Structural Interpretation
5.5 Language Functions and Communicative Purpose
5.6 Theory and Analysis: Genre or not?

6. Final Conclusions

Bibliography
Appendices:

1: Text A1
2: Text A2
3: Text A3
4: Text A4
5: Text A5
6: Text A6

Summary (appendix 7)
1. Introduction

How do we define genre? This classic question has been debated for decades and even centuries. In recorded history the genres of e.g. novels, letters and newspaper articles have been well-known among experts as well as lay people. However, the concept of genre could easily be considered much more complex. Not only the above “common” pieces of text have their own genre. Basically, any kind of text would belong to some genre. During the last few years many linguistic experts have been doing extensive research within the area of genre analysis of non-fictional texts. This research has brought useful results and thus, the concept of genre has become much broader than it used to be a century or two ago.

I had several reasons for initiating the attempt to produce this paper. First, I find the concept of genre very interesting and after having worked with a number of tasks regarding genre in class, I decided to explore the possibility of working with the subject and, perhaps, try to produce something on my own. But there was more to it than this – where and how would I start my studies?

Obviously, I needed some text material to work with. At this point the decision on whether to write about genre had not been taken – it was just a consideration. I started out deciding that I wanted to do something practical. Writing this paper in itself is sufficient theory for my taste, so why not try to find some material from “real life”?

1.1 Working with the Company and the Texts
As it turned out, I had the opportunity to do some work for a Danish company, inProject ApS. The company, specialising in consulting engineering, was planning to complete a major order within a couple of months’ time. A transport system for pallets had to be delivered to a customer in the UK and in this connection, a large amount of text material had to be written and translated from Danish into English. These texts comprised descriptions and specifications for the entire system. Hence, the appointment was made that the company would produce some texts in Danish and some in English and then my job would be to translate and/or revise these texts to make them as close to perfect English as possible.
Originally, I was expected to translate and/or revise about 100 pages of text material. In the end, it turned out to be no more than the approximately 25 pages which are found as appendices to this paper. Due to several delays and technical limitations, I never even finished revising the texts. This means that not all of the texts included here as appendices are free of errors. This, of course, means that some problems have occurred during my writing of this paper but in the end, it turned out to be possible to make sense of it after all.

Having introduced the background for the present paper, I will now elaborate a bit on my work with translating and revising the texts in question. First of all it must be pointed out that the texts, which are included as appendices 1-6, only form part of the entire documentation material for the system. The plan from the very beginning was that a complete set of texts would have been provided but unfortunately, I had to settle for these six single units of text material.

Not only the amount of text turned out to be a potential problem for the present paper. The work with the individual texts was made considerably more difficult due to lack of communication with the company. As a result of the very poor quality of some of the text material, I needed to consult the people at the company while working with the texts. Quite simply, I needed help from the people who wrote the original texts if I should ever have a chance to understand some of the passages. However, no assistance was available so I had to finish the job on my own.

In essence, I faced two different tasks when working with these texts: Translation and revision. The texts included as appendices are my own versions after having worked with the originals. As a basic idea common to all texts, the originals are not directly relevant for this paper since the work with genre analysis is not directly related to translating or revising a text. Although the translated and revised texts are very much different from the originals, the genre as such remains unchanged. This statement is based on the fact that the main objective with translation as well as revision was to produce a set of target texts which were as close as possible to the source texts. Hence, the texts included are all in English and they are directly equivalent with the original texts, translated as well as revised.
The work in itself proved to be less difficult than expected. The translations created no real problems as the general sentence structure of the texts is rather simple and most of the technical words which needed translation could be found in a dictionary. The biggest problem appearing during the process was when an alteration of the Danish sentence structure was needed in order to produce a reasonable sentence in English. The revised texts did not present any greater difficulties either. In essence, the biggest problem was the one which could never be solved: In some places it was simply impossible to understand the sentences, some of which were written in a very inelegant English (to say the least). Since no help was ever offered from the company, I decided to do nothing about it. This choice was made only because I had absolutely no chance of even coming up with a reasonable guess for a solution.

The practical circumstances connected with the task were a little chaotic as well. Most of the texts were sent back and forth by email but not all of them were easy to work with. As a result, some pictures and figures had to be left out in some of the texts; otherwise, they would never have been included at all as part of this paper. These technical problems did not make the entire process more interesting but I decided that I had to work under the given circumstances, no matter how difficult they turned out to be.

1.3 The Objective of this Paper

The present paper will describe and analyse some texts parts from a system description for a technical system. The analysis will be based on six texts (see appendix) which form parts of a complete technical description of a system for handling pallets with piles of cardboard. The main objective of this paper will be to find out whether the six texts belong to the same genre. Also, a secondary question will be investigated: Is the analysis model applicable to this kind of genre-texts? The methods used for answering these questions will be the genre analysis models described by Bhatia and Swales which are presented in the first part of the paper. Afterwards, a description of the relevant text material for analysis will follow and the analysis itself will also form a major part of the text.

Finally, then, a discussion of the analysis will be included in order to put the results into perspective. Did the analysis yield the expected result? Do the characteristics of the analysed
texts correspond to the standards of the technical genre? Do the texts represent a genre at all? And is the model for analysis adequate?

Both the analysis and the discussion will include several significant aspects of the texts, including contextual considerations as well as a description of lexico-grammatical features, text-patterning and structure.

As mentioned above, the main reason for producing this paper is to determine whether the texts from the technical system description are all part of the same genre. I hope to be able to draw a reasonable conclusion to this question even though the text material available is far from flawless.

1.4 Structure and Content
The paper will comprise a total of six chapters with this introduction being the first. The following lines will briefly present the content and aim of each chapter.

Chapter 2 will include a thorough description of the theoretical background which I consider relevant for this paper. The basic method which I intend to follow is the model for genre analysis as described by Vijay K. Bhatia in his book, “Analysing Genre”. This model is applicable to any kind of what Bhatia refers to as “unfamiliar genre”. Also, some general considerations on genres will be included and my main references in this connection will be John M. Swales and, again, Bhatia. The theoretical background will provide a basis for working with the texts subject to analysis and will cover a presentation of the chosen analysis model as well as a discussion on the very concept of genre.

Chapter 3 provides a thorough description of the texts which I have been working with. The texts are included as appendices 1-6 with this paper and the descriptions will focus on a number of relevant details in relation to analysing the texts. Each text will be described one at a time even though they have many features in common. Describing each text on its own is considered necessary because the six texts only comprise part of the complete material. If the entire text material had been accessible, it would have been possible to choose the most
relevant texts for this investigation. In this particular case, however, the work will have to be
done with the entire (and limited) material available.

Chapter 4 will present the most central part of the paper, namely the analysis. The chapter will
proceed in accordance with the theory and method described in chapter 2. Thus, a
considerable part of the content will be based on a thorough analysis following Bhatia’s
model. The observations from chapter 3 will be the starting point of the analysis but where
needed, I will also refer directly to the texts as they appear in the appendices. Bhatia’s model
comprises a total of seven steps which differ in importance. The chapter will not only contain
the analysis itself but also some considerations on the importance of each step. The results
from the analysis should provide a possibility to draw some relevant conclusions in chapters 5
and 6.

Chapter 5 will evaluate the results from the analysis in chapter 4. Each part of the analysis
will be considered on its own in order to assess the results from each part individually. The
discussion will take into consideration both the results of the analysis and the significance of
these results in connection with the objective of the paper. Also, an evaluation of the
relationship between the basic theory and the texts subject to analysis will be carried out.

Chapter 6 will be a short piece of text to finish off the paper with an adequate conclusion. The
two main questions mentioned in this introductory part will be answered as precisely as
possible. With these final comments, I hope to have fulfilled the purpose which I intended for
the paper from the beginning.
2. Theory and Method

In order to create a starting point for this paper, I now intend to define my working method and to introduce the theoretical background for my analysis. The first part of this chapter will be a brief description of the process which I will follow through the text. Then, a thorough presentation of the theories which I find relevant will follow. The main sources for this theoretical foundation are, as mentioned earlier, the works of John M. Swales and, especially, Vijay K. Bhatia. These pioneers within the area of genre analysis have given me great inspiration, and I hope to be able to show that their theories are applicable to the sort of texts which I have been working with.

2.1 Method and Working Process

As already described in the introductory chapter, the basic idea of this paper is to find out whether or not the technical texts with the characteristics of those included as appendices 1-6 could be described as belonging to the same genre. In my attempt to answer this question, I will go through several steps of describing and analysing the texts. The first task will be to define the theoretical background needed to carry out any work of this sort at all. This will be done in the following parts of this chapter as mentioned above. Then, a thorough description of the texts which will form the basis of my survey will follow. This will be done in chapter 3 and in accordance with the theory described in this chapter. Chapter 4 will contain the analysis of the texts, again based on the theories of chapter 2 and the observations of chapter 3. The fifth chapter, then, will include a further discussion of the results from chapter 4 and in the end, it will – hopefully – be possible to present a reasonable conclusion as the sixth and final chapter. In this way, the intention is to build up the paper step by step and finally arrive at a result which is based upon a thorough working process.

2.2 Defining Genre

The first question to be asked in connection with a survey of this sort is: What is genre anyway? The concept of genre is not new but it has developed a lot, especially during the last few decades. Different genres within fiction have been used for centuries; however, for the particular purpose of this paper, it is necessary to define the more specific concept of non-fictional genre.
2.2.1 Swales: Genre Defined

In his book on genre analysis, John M. Swales comes up with a definition of the concept of genre which will be the applied theoretical starting point for this paper. The definition is rather long and hence, it will be presented in small bits; at the same time, a detailed explanation will be carried out. Also, Swales’ own arguments and comments will be considered in the following.

First, Swales states that ‘a genre comprises a class of communicative events’ (Swales, 1990: 58). Obviously, the important question to ask is, then: What is a communicative event? Swales’ own answer is an assumption, namely that ‘a communicative event is one in which language plays both a significant and an indispensable role’ (Swales, 1990: 45). He also stresses that the communicative event is a complex notion, comprising not only of the discourse itself but also of the role of the discourse and the environment and culture surrounding it (Swales, 1990: 46).

It follows from the above that the notion of the communicative event is very broad. Indeed, any situation involving language, be it spoken or written (or possibly even somewhere in between) would qualify as a communicative event. Swales limits the possibilities by introducing two specific conditions for the role of language but the purpose of defining the communicative event remains the same. We need an overall distinction between events which cannot under any circumstances be considered a genre and events which possibly can, depending on some further limitations.

Swales’ next consideration takes its starting point in the communicative purposes as he argues that ‘a collection of communicative events are turned into a genre by a shared set of communicative purposes’ (Swales, 1990: 46). In this way the focus of the notion of genre is put on ‘shared purpose rather than on similarities of form or some other criterion’ (Swales, 1990: 46). He then points to the problem that purpose may be difficult to “measure” in a sufficiently exact way but on the other hand, the very nature of genres often makes them hard to classify anyway.
Here, the argument takes the notion of genre a little further. The communicative events mentioned earlier need to belong together in the sense that they must share the same communicative purpose. This focus on function distinguishes different texts in a way which sees beyond form and content. For instance, two texts which both tell us something about the game of tennis could easily belong to different genres even though they would share many words. One text could be a list of rules of the game while the other could be a tournament presentation. In this case, the texts would have different purposes and thus, belong to different genres – but the subject would basically be the same.

Following this observation, though, the definition of genre still needs to be narrowed down. Swales states next that ‘exemplars or instances of genres vary in their prototypicality’ (Swales, 1990: 49). With this consideration, he starts searching for more features needed for the establishment of genres. A distinction is then made between two methods for grouping: the definitional approach and the family resemblance approach. The first is a terminological method based on properties, i.e. a bird is said to possess some basic properties which help us classify different animals (sparrows, owls, pigeons etc.) as birds. However, this does not always work unambiguously. For instance, the concept of games is very broad, comprising many different groupings of game types. Using an illustration of these examples, Swales arrives at the conclusion that ‘what holds shared membership together [may not be] a shared list of defining features, but inter-relationships of a somewhat looser kind’ (Swales, 1990: 49-50).

The perception of the communicative purpose as the main focus point of genre membership allows this relatively loose definition of genres. If the genre analyst chooses to concentrate on e.g. form or structure, he may be able to determine that a given text is typical of its genre. However, this may not always be a simple task and, therefore, the family resemblance approach could be helpful in the way that it allows the analyst to allocate the text within a specific genre even if the text does not necessarily possess all the properties normally expected of the genre.

The next part of Swales’ definition is concerned with the condition that ‘the rationale behind a genre establishes constraints on allowable contributions in terms of their content, positioning
and form’ (Swales, 1990: 52). The rationale mentioned here is created by the people working within the genre as they apply the shared set of communicative purposes; these people – whether ‘established members of the parent discourse community’ or not – may be consciously aware of this or not. This rationale is the necessary background for the genre’s conventions which provide limitations and constraints to the specific form of the genre (Swales, 1990: 52).

The genre conventions form a central part of the concept of genre as a whole. These conventions are the significant issue of this part of the definition since the conventions determine the basic content and structure of any genre. As a simple example, consider a personal letter. This is normally characterised by a personal greeting at the very beginning (only preceded by a note of place and date). If this personal greeting is left out or replaced by something completely different, the reader would be in doubt about the nature of the text in front of him or her. This doubt would still exist even if the rest of the letter would live up to normal expectations – i.e. be written in accordance with standard conventions. A similar reaction would apply to the reader of any genre as he always expects some specific features of the text of a given genre. In the same way, the writer includes these features and he may be aware of doing this or not.

As a final comment to his own definition, Swales says that ‘a discourse community’s nomenclature for genres is an important source of insight’ (Swales, 1990: 54). Members of a discourse community who operate professionally within it will obtain great experience with specific genres and thereby contribute to giving special names for these genres. When accepted within their original discourse community, names of this kind may then be transferred on to other communities and even become broadly known and, thus, used by any community.

Here we are dealing with a matter of naming genres. Naturally, a genre cannot have a name before it has been in use in some specialist community for some time. People who work within such a specialist community will often tend to systematise their work as soon as they discover a possibility to do this. After having started a new or different way of working within their area, they may consider naming a new genre or sub-genre in order to create a system or
frame and then, this name may be transferred to other communities. Therefore, it is important to be aware of the different genres already in existence as they were named and, thus, at least indirectly defined by experts. Even though these people are not necessarily linguistic experts, they are still experts within their specialist field; hence, they are very likely to be the experts of the genre as well.

With all these considerations, Swales succeeds in defining genre in an applicable and useful way. However, the definition in itself is rather long and contains several additional explanations and as the above presentation has shown, many details could be viewed and interpreted in different ways. The conclusion to all this will be that genre as a notion is not easy to define or “coin” with just one simple expression. In his later work, Swales comments on the problems connected with definitions of such complex notions:

“For one thing, they fail to measure up the Kantian categorical imperative of being true in all possible worlds and all possible times; for another, the easy adoption of definitions can prevent us from seeing newly explored or newly emergent genres for what they really are.’ (Swales, 1990: 61)

Looking back at his own defining statement, then, Swales acknowledges that no matter how accurate and adequate his definition of genre may be, it will always need evaluation and further development. On the other hand, his observations are very reasonable and seem relevant in genre analysis and assessment. Hence, the above theory will be included as part of my own genre analysis but other views on genre perception need to be considered as well. In the following I will introduce Vijay K. Bhatia whose theories are my main source for this paper.

2.2.2 Bhatia: Defining Non-fictional Genre

Vijay K. Bhatia begins his explanation on genre analysis with defining the notion “non-fictional genre”. His starting point is the definition by Swales presented above, the essence of which he discusses in further detail.
The first comment made by Bhatia is that the nature of a genre ‘is primarily characterised by
the communicative purpose(s) that it is intended to fulfil’ (Bhatia, 1993: 13). The
communicative purpose(s) will determine the structure of the genre; should the purpose(s)
change in a significant way, the genre would be different. Bhatia continues his elaboration
with the observation that ‘communicative purpose is a fairly reliable criterion to identify and
distinguish sub-genres’ (Bhatia, 1993: 14).

This perception differs slightly from the arguments of Swales; however, the difference seems
to be of a rather subjective nature. Bhatia’s opinion is that often, the communicative purposes
will point the analyst towards a possible difference between genres whereas Swales stresses
that other factors are also important in this connection. Of course, all relevant factors which
may be observed by the analyst should be taken into consideration but the communicative
purpose will always be one of the most relevant factors. Hence, the discussion leads to the
result that the analyst should focus on the communicative purpose - but he should also keep in
mind that this may not entail the entire truth about the genre.

Next, Bhatia comments on structure and conventions in the sense that

‘specialist members of any professional or academic community are generally credited
with the knowledge of not only the communicative goals of their community but also
the structure of the genres in which they regularly participate as part of their daily
work.’ (Bhatia, 1993: 14)

Hence, in a specific field, a genre is shaped by the experts who work with it and within it.

This statement is clear: genres (in this particular case: non-fictional genres) are developed and
structured by people who are professionals within their field. Their knowledge and experience
dictate their way of communication and form the genre they use. An outsider could never
contribute to the communication within a professional community without knowing and
obeying the conventions already in existence. The result of such an attempt is easy to predict:
communication would fail. This perception of Bhatia is not significantly different from
Swales’ definition above since the central point in comparing the two is Bhatia’s focus on
defining non-fictional genre. In this connection, the specialist community is essential and there is little doubt that any specialist community shapes its own genre(s).

The elaboration on this observation is based on the constraints defined by any genre, meaning that ‘although the writer has a lot of freedom to use linguistic resources …, he must conform to certain standard practices within the boundaries of a particular genre’ (Bhatia, 1993: 14). Within these constraints, the writer may achieve an advantage by making use of the conventions in order to affect the text in a personal way but should he develop his writing further than allowed by the constraints, the result would be a strange text. This is exactly what makes the difference between genres and enables the reader to distinguish between genres which may seem to be related, e.g. a newspaper editorial and a news report (Bhatia, 1993: 14).

Here, Bhatia follows the lines of Swales as he stresses the importance of the genre conventions. The direct relation between constraints and conventions means that the two notions belong together. Constraints are the limitations defined by the genre; if these limitations are broken, the text will not belong to the genre defined by the constraints. The conventions are the specific means used by the writer in order to keep his text within the constraints. An example would be the ending of a business letter. Normally, the reader of the letter would expect to be addressed in the end with “yours sincerely” or “yours faithfully” – and certainly not with “greetings” or “love”. Bhatia emphasises that not all examples of such conventions in terms of form and function are this obvious (Bhatia, 1993: 15). However, a conventional difference of this kind is exactly one of the most significant features used to distinguish between genres.

Bhatia continues his considerations on genre constraints when commenting on the use of genre conventions by members of professional communities. Due to their experience within the field, these experts often have more knowledge of the genres’ boundaries, and thus

‘… expert genre writers often appear to be more creative in the use of genres they are most familiar with than those who are outside the specialist community.’

(Bhatia, 1993: 15)
Bhatia observes the logic of this perception when stating that it is necessary to be familiar with the genre conventions in order to exploit them. This is a confirmation of Swales view as explained above, and Bhatia states furthermore that because of this fact, genre analysis becomes even more difficult as the analyst often needs the assistance of a specialist to be able to carry out a satisfactory analysis (Bhatia, 1993: 15).

The obvious outcome of this consideration is, of course, that knowledge of genre conventions is necessary if one should wish to exploit them. Naturally, a genre analyst would often encounter a genre-text representing a specialist field which he has little or no knowledge of and therefore, he would need a specialist in order to identify all relevant features. Even though the analyst focuses on genre conventions, he would hardly be able to distinguish very small variations since the subject of the text is closely connected to the genre.

Bhatia summarises his own definition by stating that the difference between the views of Swales and himself is the psychological part of the concept which Swales ‘underplays …, thus undermining the tactical aspects of genre construction’ (Bhatia, 1993: 16). Then, Bhatia presents his own suggestion for an applicable definition of genre:

‘… each genre is an instance of a successful achievement of a specific communicative purpose using conventionalized knowledge of linguistic and discoursal resources.’

(Bhatia, 1993: 15)

Again, Bhatia focuses on the communicative purpose as the central notion for the genre concept. This definition, which is elaborated on the basis of the observations made in this section, will be applied in the discussion of the analysis of this paper.

2.2.3 Other Views of Relevance

The above two parts present the very basic perception of the concept of genre which will function as the foundation for the analysis of this paper. However, a few other comments on the genre phenomenon will be included in order to view the subject in a broader perspective.
In the preliminary part of their book from 1995 on genre knowledge, Carol Berkenkotter and Thomas Huckin describe their view on genres. The book presents a view on analysing genres which takes the matter of defining genre a step further in comparison with previous writers. The authors start by perceiving genres as media and continue with the following elaboration:

‘Genres are intimately linked to a discipline’s methodology, and they package information in ways that conform to a discipline’s norms, values, and ideology. Understanding the genres of written communication in one’s field is, therefore, essential to professional success.’ (Berkenkotter and Huckin, 1995: 1)

According to this statement, genres could be viewed in a different perspective from the ones previously described. Methodology has been mentioned before but the very broad notions of ‘norms, values, and ideology’ are new in this discussion. The connection to the social parameters surrounding a genre is obvious but especially the inclusion of ideology in this perspective is interesting. According to this view, a genre must be rooted very deeply within its discipline since the ideology forms the very basis of any discipline. Hence, a genre may be more than just a way of structuring and presenting a message. In fact, if a genre is defined by its own discipline in this way, the writer should have even less influence on the genre than normally expected. This view is a bit different from Bhatia’s and adds an interesting angle to the entire discussion.

Indeed, Bhatia, in his later work, accepts the perception of Berkenkotter and Huckin as he states:

‘In more recent years, genre analysis has developed further in the direction of a more comprehensive exploration of social space to raise a number of other interesting issues, in particular those that question some of the basic assumptions about the integrity of generic descriptions.’ (Bhatia, 2004: 22)

Bhatia describes the development of genre theory and genre analysis as having gone through several steps, starting with the “traditional” register analysis introduced by Halliday in the 1960s. In these times, genre was not the central topic of analyses and analysing written
discourse was ‘overly influenced by frameworks in formal linguistics’ (Bhatia, 2004: 4). Later, more focus was put on the organisation of written discourse and, thus, the conventional perspective included in genre theory became more significant. Swales and Bhatia were among the first to investigate this in detail, ‘relating discourse structures to communicative purposes’ (Bhatia, 2004: 5) within specific genres. The most recent development within genre analysis has been concentrating on the concept of contextualisation, meaning that analysts have been concerned with looking ‘more widely at [the] disciplinary and institutional context’ (Bhatia, 2004: 11).

The result of this gradual development of genre analysis is that today, a large variety of possible orientations exist for the analyst. Whether analysing a genre as a whole or a single genre-text, the analyst has the possibility to consider a number of ways to fulfil his task and to focus on the aspects which he considers the most important. However, with these considerations as a useful starting point, it must be stressed that conventions are very significant in genre analysis. When looking at any text with a genre investigation in mind, the analyst cannot deny that ‘the most important feature of this view of language use is the emphasis on conventions’ (Bhatia, 2004: 23). This observation is implied in the nature of the genre concept which Bhatia describes as follows:

‘Genre essentially refers to language use in a conventionalized communicative setting in order to give expression to a specific set of communicative goals of a disciplinary or social institution, which give rise to stable structural forms by imposing constraints on the use of lexico-grammatical as well as discoursal resources.’ (Bhatia, 2004: 23)

The logical conclusion derived from this statement is that genre and conventions are two notions which inevitably belong together. If no conventions are present in a text, no specific genre could be associated with it. However, a text written on the basis of no conventions at all is not likely to exist; hence, if Bhatia’s assumption is true, all texts must belong to some genre.
2.3 Genre Analysis

Analysing texts in order to place them within specific genres is a discipline which has been in existence for only a few decades. An overall explanation of the concept of genre analysis is rather simple. A given text is analysed in such a way that the analyst acquires the necessary information to determine which genre the text could be said to belong to. This analysis will not focus on the informational content of the text as such but on the features and conventions used which make the text look or appear similar to other texts. Similar texts would then belong to the same genre or, in some cases, the texts would belong to different sub-genres.

2.3.1 Bhatia: Function of Orientation

Bhatia’s approach to genre analysis takes its starting point in his conviction of discourse analysis as a ‘multidisciplinary activity’ (Bhatia, 1993: 16). It is necessary to observe the very concept of genre analysis from different angles:

‘From the point of view of the analysis of functional variation in language, one envisages at least three different kinds of orientation, depending upon the nature of background knowledge and the motivating purpose the researcher brings to genre analysis.’ (Bhatia, 1993: 16-17)

First, a linguistic orientation is necessary. Bhatia compares the approaches of text analysis from the 1960s with newer research. The classical register analysis tended to focus merely on linguistic features and the results were often dominated by lexico-grammatical observations. Either the analyst succeeded in showing a relatively large amount of one or more specific features, or he pointed to the fact that he had found no examples at all of a specific feature. Later work gradually took the content of text analysis away from this approach and put more focus on textualisation and rhetorical organisation. Bhatia stresses the importance of this shift and states about the new studies:

‘… they tend to associate certain specific features of language with certain types of writing or styles. However, very few of them distinguished a variety (or register) from a genre.’ (Bhatia, 1993: 17)
This represents not only a development but also a problem. Bhatia goes on to explain that this approach would not distinguish between two different texts in scientific English. Moreover, this method would also show a significant difference between research articles in science and, e.g., psychology. However, from the point of view of the genre analyst, this has been shown to be an insufficient perception. Bhatia’s conclusion is that

‘Analyses of varieties or registers on their own reveal very little about the true nature of genres and about the way social purposes are accomplished in and through them in settings in which they are used.’ (Bhatia, 1993: 18)

The linguistic orientation to genre analysis is important, especially due to its development from a rather one-dimensional into a more complex method for analysis. However, in relation to genre it leaves many aspects to be investigated further and thus, a genre analysis should include more than just a linguistic analysis.

The next relevant orientation is of the sociological kind. Any genre places the message of a text within a social frame. Bhatia says on this issue that

‘This aspect of genre analysis emphasizes that text by itself is not a complete object possessing meaning on its own; it is to be regarded as an ongoing process of negotiation …’ (Bhatia, 1993: 18)

This view is very different from the linguistic aspect but still very significant. Obviously, any text is not just a text in itself. It was written by an author who had a purpose with doing it and who wanted to convey a message of some sort. This event, i.e. the text being written, happened somewhere in time and space and hence, some social conditions must have influenced the author. It follows from this that the genre-text in question tells us something about the social situation it fits into – even without taking into consideration the purely linguistic features of the text. Bhatia concludes on the subject:

‘The sociological aspect of genre analysis focuses on the conventional and often standardized features of genre construction …’ (Bhatia, 1993: 19)
Hence, sociology influences the structure of a genre-text and the conventions used to obtain this structure.

Another angle to be mentioned in this connection is the psychological orientation. Bhatia extends this issue a little further by introducing two aspects of it:

‘The psycholinguistic aspect of genre analysis reveals the cognitive structuring, typical of particular areas of enquiry, whereas the tactical aspect of genre description highlights the individual strategic choices made by the writer in order to execute his or her intention.’ (Bhatia, 1993: 19)

With this orientation as a starting point, the focus is mainly on the writer’s way of structuring text. The tactical choices mentioned above are made intentionally by the writer ‘to make the writing more effective, keeping in mind any special reader requirements’ (Bhatia, 1993: 20). Also, considerations on the use of media and possible constraints contribute to make these choices necessary. The basic idea behind these so-called non-discriminative strategies is to exploit the conventions of the genre in question in order to convey the message intended without changing the genre’s communicative purpose. In essence, this is a matter of the author shaping his text and message in his own way but still obeying the generally accepted conventions of the genre.

On the opposite, discriminative strategies may contribute to changing the nature of the genre, thereby creating sub-genres within the original genre. Bhatia discusses this phenomenon only briefly through a few examples and concludes:

‘However, it must be admitted that it seems almost impossible to draw up clearly defined criteria to make a satisfactory distinction between genres and sub-genres.’ (Bhatia, 1993: 21)

The obvious conclusion on this statement is that the concept of genre is not always unambiguous, not even after the carrying out of a thorough analysis.
2.3.2 The Genre Analysis Model: Background

Bhatia’s model for investigating genre comprises seven different steps which should be considered in connection with any kind of text. However, not all steps may be relevant for all texts. In order to present a sufficiently thorough analysis, though, I will describe all steps in this part of my paper. In my analysis and discussion, I will consider the relevance of each step according to my results.

According to Bhatia, there are three basic reasons for considering the relevance of each step. First, it is necessary to be aware of the purpose of the analysis. Second, the aspect of the given genre is significant for the analysis. And third, any background knowledge about the genre already acquired by the analyst will affect the results for each step. (Bhatia, 1993: 22)

Naturally, it is necessary to consider these aspects as the analysis is carried out. The purpose with the analysis is to arrive at a result which states something about the genre in question. Hence, this purpose will be the main focus of each chapter throughout this paper. The aspect of the genre of the texts included is also necessary to keep in mind and my own background knowledge will, hopefully, be of help in some places during the analysis. To sum up, this means that all three aspects will form an important part of the progress during the analysis as well as the discussion.

2.3.3 Step 1: Placing the Given Genre-text in a Situational Context

The key word for this first step is intuition. What does the text look like at a first glance? The reader should attempt to define a situational context for the text without any further considerations than just reading through the text. Bhatia mentions three aspects which should give the reader the ability to do this, namely:

‘… by looking at one’s prior experience, the internal clues in the text and the encyclopaedic knowledge of the world that one already has.’ (Bhatia, 1993: 22)

He goes on to explain that:
‘This will include the writer’s previous experience and background knowledge of the specialist discipline as well as that of the communicative conventions typically associated with it.’ (Bhatia, 1993: 22)

Not anyone automatically possesses the background knowledge needed for this purpose and, therefore, people who work with the genre as a part of the relevant specialist community will be able to recognise the genre easier than people who have no knowledge of the specialist field. These people will have to acquire the necessary knowledge through relevant literature. (Bhatia, 1993: 22)

2.3.4 Step 2: Surveying Existing Literature

As mentioned in step 1, it may be necessary to acquire some relevant knowledge on the text’s subject and conventions. The analyst should, therefore, find some literature already written about the genre. Bhatia suggests four different relevant subjects:

- literature on linguistic analyses of the genre.
- methods or theories of linguistic analysis.
- relevant practitioner advice or guide books.
- discussions of the social structure, history, goals etc of the specialist community.

(Bhatia, 1993: 23)

This literature is necessary to gain more knowledge on the subject in question and basically, any peace of text which may enlighten the reader on either the relevant genre or specialist area could apply in some way or another.

2.3.5 Step 3: Refining the Situational/Contextual Analysis

Step 3 follows the very basic steps 1 and 2 and takes the analysis to a slightly more technical level. Bhatia mentions four main considerations which need to be made – since they are very essential, I will quote them directly:

‘defining the speaker/writer of the text, the audience, their relationship and their goals;
defining the historical, socio-cultural, philosophic and/or occupational placement of the 
community in which the discourse takes place;
identifying the network of surrounding texts and linguistic traditions that form the 
background to this particular genre-text;
identifying the topic/subject/extra-textual reality which the text is trying to represent, 
change or use and the relationship of the text to that reality.’ (Bhatia, 1993: 23)

Generally, this part of the analysis is a matter of describing what is known about the text. The 
first task is to define the sender, receiver and function of the text. Next, it is necessary to 
consider the relevant specialist community in detail. Then, a description of the linguistic 
background for the genre-text in question should follow and, finally, the topic or theme of the 
text can be defined.

2.3.6 Step 4: Selecting Corpus
The selection of text corpus for analysis is important as it is clearly necessary to specify 
exactly how much and what sort of text to use for further investigation. Bhatia defines three 
considerations needed by the analyst for this selection to be possible. First, it is necessary to 
‘define the genre or sub-genre that one is working with well enough so that it may be 
distinguishable from other genres either similar or closely related in some ways;’
(Bhatia, 1993: 23)

The basic idea behind this need is to avoid any confusion. If the genre is not defined well 
enough from the beginning, the analyst may encounter a problem when selecting text(s) for 
analysis, i.e. the text corpus may become too narrow or too broad. Hence, it is a good idea to 
look at ‘communicative purposes, the situational context(s) … and some distinctive textual 
characteristics’ (Bhatia, 1993: 23) of the genre-text before defining the exact text corpus. 
Second, it is advisable to 

‘make sure that one’s criteria for deciding whether a text belongs to a specific 
genre/variety are clearly stated;’ (Bhatia, 1993: 23)
This is obvious since the criteria in question form the very basis of the investigation and thus, it is necessary to define and include these criteria as a starting point of the analysis. The third consideration is to

‘decide one’s criteria for an adequate selection of the corpus for one’s specific purpose(s)’ (Bhatia, 1993: 24)

Naturally, the selection will depend upon the purpose of the analysis. It may be necessary to select different texts or pieces of texts in accordance with the level of analysis which may be very detailed or, perhaps, more or less exploratory.

2.3.7 Step 5: Studying the Institutional Context
Any genre is used in some institutional context which is based on a system or methodology. This means that the use of language in any genre is governed by a certain set of conventions. These may derive from the linguistic, social, cultural or academic context which is expressed by the people using the genre. When people use the genre for either written or oral communication, they typically follow these conventions implicitly, i.e. they are not aware that they communicate in a specific way. The genre analyst should attempt to define these conventions in order to make a thorough investigation. In this connection, the study of literature concerning the given institutional context could be very helpful. (Bhatia, 1993: 24)

This step is useful as a further development of the results already achieved from the first three steps. Knowledge of the specific context and environment in question will always help the analyst to understand the genre and its conventions. In the same passage of his book, Bhatia also mentions that it may be relevant to study certain organisational contexts as well since some particular organisations may have defined their very own genre conventions. Naturally, any context, whether social, professional or organisational, will always have some sort of influence on the text-genres used within it.

2.3.8 Step 6: Levels of Linguistic Analysis
The five steps described above serve as a foundation for a more detailed analysis, namely the linguistic analysis. Having completed all of the above considerations and taken the necessary
decisions, the analyst ‘decides at which level(s) the most distinctive or significant features of language … occur, and carries out the appropriate analysis’ (Bhatia, 1993: 24). This analysis may focus on three different levels: analysis of lexico-grammatical features, analysis of text-patterning or textualisation, or structural interpretation of the text-genre. It may be necessary to investigate the genre-text at all three levels, or it may only be necessary to look at one of the levels. This decision is also to be made by the analyst. The three levels will be described in the following sections.

2.3.8.1 Level 1: Analysis of Lexico-grammatical Features

This sort of analysis focuses very strictly on the specific language features of the text and the method is typically to carry out a statistical survey of the common features in a text. An example would be to analyse a text in terms of word-classes, tenses, or clauses used and determine the frequency of these specific features. Bhatia emphasises that even though this sort of investigation may provide a large amount of relevant information, it is still limited in the sense that it will not tell the analyst very much in terms of the communicative purpose of the given genre. An analysis of these lexico-grammatical features will always bring some results which ‘remain severely constrained by their emphasis on surface features’ (Bhatia, 1993: 25) and, therefore, their main purpose would be to ‘confirm or disprove some of the … statements we all tend to make about … various genres’ (Bhatia, 1993: 25).

Here, Bhatia points to two significant observations. First, it is clear that the analysis of lexico-grammatical features is very useful in order to determine whether a given genre actually includes the features which one would expect. Hence, an analysis of this sort is necessary if a reasonable conclusion is to be drawn. Conclusions should never be based on expectations or intuition. Second, and on the other hand, it is also clear that a lexico-grammatical analysis will never cover all aspects of a given genre. Therefore, to answer all questions about a given genre-text, it will be necessary to analyse it in different levels.
2.3.8.2 Level 2: Analysis of Text-patterning or Textualisation

Bhatia begins his explanation of this concept with the following statement:

‘This aspect of linguistic analysis highlights the tactical aspect of conventional language use, specifying the way members of a particular speech community assign restricted values to various aspects of language use … when operating in a particular genre.’ (Bhatia, 1993: 26)

He goes on to mention several examples of this taken from contexts of chemistry, advertising and legislative writing. The conclusion is that a particular linguistic feature may represent a specific aspect of a given genre. One example is the use of noun phrases in scientific writing. Noun phrases appearing in the beginning of an article may be less concise than those appearing at the end. The reason for this is that the writer will assume that the reader needs an “introductory” language from the start and thus, he will use noun phrases which are not too complex. The differences which may appear in this way in various genres are what Bhatia refers to as text-patterning, and this ‘adds interesting explanation to the analysis of lexico-grammar of a genre’ (Bhatia, 1993: 29).

This level of analysis is very interesting since it focuses on the conventional use of language within the genre, and Bhatia’s perception of the creation of additional information to the lexico-grammatical analysis is very central. In an analysis of this kind, it is not important how many noun phrases are used but how they are used, and why they are used in a certain way. This means that what is important is the function of the particular lexico-grammatical features, not their appearance as such. Hence, this level of analysis will be necessary to include in order to acquire more knowledge about the genre-text.

2.3.8.3 Level 3: Structural Interpretation of the Text-genre

Interpreting the structure of the genre-text is a matter of considering the way in which information is presented. Bhatia states in his explanation:

‘Specialist writers seem to be fairly consistent in the way they organize their overall message in a particular genre, …’ (Bhatia, 1993: 29)
As an example, Bhatia mentions an investigation carried out by Swales which shows that article introductions (seen as a genre) typically follow a specific structure of four rhetorical “moves”. Each move includes a new sort of information and, thus, fulfils a new communicative purpose. For each move there may be several different strategies to follow. In this way it is shown that each move has its own communicative intention functioning as a part of the overall communicative purpose of the genre-text. (Bhatia, 1993: 30)

This level of analysis again adds relevant consideration to the preceding two levels. Looking at the structure of information in any genre is very relevant since this structure may reveal some important features in connection with the genre conventions. Also, the communicative purpose is a significant feature of any genre and, therefore, defining a possible specific communicative structure in the genre-text would help the analyst in his concluding upon his findings. As a comment on the above statement on specialist writers by Bhatia, it must be emphasised that the more consistent these specialist writers are, the more clearly their genre can be defined. Hence, it is a central issue for the analyst to try to find some particular organisation or structure of the genre-text in question.

2.3.9 Step 7: Specialist Information in Genre Analysis

This final step is the more practical part of the genre analysis. The genre analyst should consult a specialist within the field of the text-genre in order to get a second opinion on his results. Bhatia writes as follows about the analyst’s final task:

‘The specialist reaction confirms his findings, brings validity to his insights and adds psychological reality to his analysis. It is an important aspect of genre analysis, if one wishes to bring in relevant explanation rather than mere description in one’s analysis.’ (Bhatia, 1993: 34)

Bhatia describes a number of factors which are important to keep in mind when consulting a specialist informant. It is important to find a person who is motivated for contributing to the investigation, and it is just as significant to develop a common understanding between the two persons working together. The analyst should be very thorough when formulating questions and he should have carried out a very comprehensive analysis before consulting the specialist.
On the other hand, the specialist should be very experienced within his field and, at the same time, be aware of the importance of the linguistic part of his work. (Bhatia, 1993: 34-35)

After having carried out the analysis in itself, it is, of course, advisable to consult someone qualified to give a second opinion. However, this is perhaps the most difficult task of the entire analysis since the co-operation between analyst and specialist must be very efficient in order to bring any useful result at all. Thus, the necessity of any such co-operation should be considered on the basis of the size and purpose of the analysis.

2.4 Summary: Relevance and Decision-making
The theoretical descriptions of this chapter form the basis for the analysis to follow in chapter 4. The analysis will be carried out in accordance with Bhatia’s model from section 2.3. However, in order to put the analysis into a broader perspective, the defining considerations from section 2.2 will be applied in the discussion in chapter 5. Especially Bhatia’s obvious focus on communicative purposes will be kept in mind. However, Swales’ basic definition of genre is essential in order to place the texts within the world of genre; this is indeed necessary if the analysis is to have any significance at all. Furthermore, it will be necessary to consider the views of Bhatia as well in order to make a connection between the genre concept and the genre analysis. During the analysis, it will be necessary to make a number of decisions on relevance and extension of the different steps and features. These decisions will be described in connection with each step. First, however, I need to describe the texts which I have been working with – this will follow in chapter 3.
3. Description of Relevant Text Material

In this section I will make a thorough description of the six texts on which I intend to base my genre analysis. The texts are included with this paper as appendices 1-6 and since most of them differ in terms of length, structure and content, I will describe them one at a time, i.e. each text will be dealt with in its own subsection. The descriptions will concentrate on the linguistic features of the texts as described in Bhatia’s model for genre analysis in section 2 since these are most important in relation to my own analysis which will be presented in section 4.

As a general remark applying to all six texts, it is significant to mention that the layout of each text will not be considered relevant to the analysis. Working with text structure and graphics was never part of my job for the company. Moreover, as the texts appear in the appendices, I have left out a number of figures and pictures - partly because they are not important in connection with analysing genre, partly to make the texts easier to survey.

3.1 Text A1: “Description of the Pallet Handling Crane”
This text was translated from Danish into English and covers only a little more than one page. In my translation I tried to stay as close as possible to the source text, meaning that I have altered as little as possible regarding sentence structure and grammar. The content of the text is a point-by-point description of how the pallet handling crane (PHC) works.

Beneath the headline, the text contains a small paragraph describing the purpose of the PHC. Then, a functional description follows, containing a total of 21 specific functions with numbers from “1” to “21”. The text for each of these 21 entries is limited to one or, at the most, three sentences. Some of the entries do not even contain a sentence as such but only a reference to another part of the text. The functional description is followed by a list of six entries describing some specific signals which may occur during the work of the PHC. These entries are numbered from “Y1” to “Y6” and each contains one or, at the most, two sentences. The final part of the text is another ten entries, numbered from “YA” to “YJ”, describing some other specific signals (however, the “YI” spot is empty). These final entries are made up
of just one sentence each. In essence, then, the text consists of three parts: one list of functions and two lists of signals.

The sentences used in the text are mainly main sentences and most of them are rather short. It follows from this that the sentences are not very complex and, thus, easy to read and understand if the reader is familiar with the wording, that is. Most of the sentences contain references either to pictures or figures, or to other parts of the text. A typical sentence from the text would be the following, taken from entry “20”:

‘The claw moves to the uppermost position and awaits the next cycle.’ (A1: 1)

The grammatical features of the text are rather consistent. Most of the verbs are used in the present tense or the present perfect tense. Generally, neither the noun or verb phrases are very complex. On the contrary, the text contains a large number of prepositional phrases which take up a considerable amount of space. An example of these features is found in the text’s entry “1”:

‘The starting position of the crane is above one of the two roller conveyors.’ (A1: 1)

A description of the words used is also necessary. Especially the choice of nouns needs some attention, since they are repeated several times during the text. Whereas many of these nouns are of a rather technical nature, the verbs are more common. Most of the verbs denote some kind of action or movement. A sentence from entry “9” shows these features:

‘The claw grabs the pallet by means of the two actuators.’ (A1: 1)

Another aspect to consider is the general structure and organisation of information in the text. There is an arrangement of text parts in small bits following each other. This is clearly indicated by the numbers preceding each bit. This structure dominates the text in a strong way and the step-by-step system makes it easy for the reader to grasp the text.
3.2 Text A2: “Description of the Pile Preparing Machine”

This text is rather similar to the previous one; it was also translated from Danish into English and covers approximately two pages. In my translation, once again, I tried to stay as close as possible to the source text, meaning that I have altered as little as possible regarding sentence structure and grammar. The content of the text is a point-by-point description of how the pile preparing machine (PPM) works.

Again, the text starts out with an explanation of the purpose of the PPM. Then, it goes on to describe the functions of the PPM. The second paragraph of the text contains six sentences which combine to define the machine in its neutral position. After this, the longest paragraph of the text follows. This is a listed description of the machine’s operation cycle with each entry having a number from “1” to “51”. Each of these entries contains only one sentence, or, in some cases, just a reference to another part of the text. The 51 entries are followed by a list of ten entries describing a number of specific signals which may occur during the operation of the PPM. These are numbered from “X1” to “X10” and each contain one sentence (however, two of the ten entries show no textual content at all). Finishing the text are another ten entries numbered from “XA” to “XJ”. These also describe some specific signals and contain one sentence each at the most (Again, three of the ten spots are empty.) The entire text consists of four parts: A functional description of the PPM in neutral position and one concerning the PPM in operation; these two parts are followed by another two, namely two signal lists.

The sentences of the text are mainly main sentences and most of them are rather short. They are not very complex and, again, easy to read and understand. Some of the sentences contain references either to pictures or figures, or to other parts of the text. As a typical example of a sentence from the text, the following from entry “13” could be pointed out:

‘The pallet plates close until the pressure sensitive switch reacts.’ (A2: 1)

The grammatical features of the text could be described in the exact same way as for the previous text. Most verbs are used in the present tense or the present perfect tense, and both noun and verb phrases show a simple structure. And again, the text contains many prepositional phrases. An example of these features is found in the text’s entry “9”: 
‘The PPM moves forward until the photoelectric cell registers the correct position beneath the crane (XI)’ (A2: 1)

The choice of vocabulary is also very relevant for this text and the same observations apply as in the case of the previous text. Many nouns are repeated throughout the text and several of them are taken from a technical context. Verbs of action and movement are found in abundance once again. One last typical example from the text appears from entry “50”:

‘The pile is moved from the intermediary transportation unit to the transfer cart (X10)’ (A2: 2)

As a final comment, it is necessary to repeat the observation from text A1 that the organisation of the text is very strict. Each bit of information follows another in a very systematic way and this helps the reader’s understanding of the text as he or she goes along.

3.3 Text A3: “List of Spare Parts”

This text appears to be different from the first two. Initially, I will mention that the name of the text, “List of Spare Parts”, does not show in the appendix – this is due to the various problems during the working process mentioned earlier. This text has also been translated from Danish into English in a very direct way, since it contains no real sentences but only single words which are, in some places, put together to form a noun phrase. The text takes form as a table which includes a technical denotation of spare parts for the system which has been introduced very superficially in texts A1 and A2.

The structure of the text is different from the other five texts in the appendices since this is actually written as a table. There are five columns and approximately 140 rows, some of which contain no information. The first column shows simply which row the reader has entered. The second column shows the relevant spare part, while the third column shows what type this spare part belongs to. The columns four and five provide additional information on some numbers applying to each part. The rows contain information on one spare part each, except for the rows 1, 11, 20, 25, 37, 47, and 103, which represent a headline for the
The nature of the text makes it appear very well organised. A considerable part of the text is made up of numbers and abbreviations and many columns and rows are empty. As a general observation, the text appears to be a list with all information arranged in a very systematic way.

3.4 Text A4: “Functional Description for Phase 2 Delivery Section”
This text was originally written in English, meaning that I have only revised it. As a consequence of this, the structure of the text is identical to that of the original text. It covers two pages and consists of three parts. The content is a description of the functional details for a delivery system.
The first part of the text is a statement concerning the purpose of the delivery section. This is followed by a list of components which comprises six entries. The next part of the text is a description of the system in operation, containing a total of 20 steps. The 20 points describing each step are made up of just one or two sentences each. The next part of the text is a list of requirements for the system. This part is introduced by a headline and a total of 12 requirements are mentioned, numbered by letters from “A” to “L”. Again, only one or two sentences are use for each point. The final part of the text is a table which provides an overview of the components of the different machine parts. The table is introduced by a headline and contains four columns and six rows. The first column presents the machine parts while the second, third and fourth columns contain specific information on each machine part. The first row functions as a headline for each column and the next rows contain information on one machine part each.

The sentences used are main sentences which show a simple structure. A few sentences are rather long but not complex. In some parts of the texts, there are no sentences as such. The reader would have no difficulties understanding the sentences except if the wording would represent a problem. In the first part of the text, there are a number of references to pictures and figures. An example of a typical sentence is found in the system description:

‘- The conveyor (pos. 6) reverses the pallet and transfers it to pos. 1.’ (A4: 1)

The grammatical features are very similar to those found in texts A1 and A2. Verbs are mostly used in the present tense or in the present perfect tense. The structure of both verb and noun phrases is relatively simple and the text contains many prepositional phrases. An example of these features is would be this sentence from the system description:

‘- The pallet magazine moves the stack with 5 empty pallets onto the pallet magazine conveyor.’ (A4: 1)

A difference from the former texts appears in the system requirement part of this text, where the modal verb “must” is included on several occasions.
On word level, the text does not differ much from texts A1 and A2. The nouns are taken from a technical context but most of them are easy to understand. Some of them are repeated several times throughout the text. The verbs mostly denote action or movement and are not of a very technical nature. A final example from this text to show these features is taken from the system requirement part (entry “E”):

‘It must be possible to run all drives from the panel.’ (A4: 2)

As a final remark on this text, it is noticeable that it contains both a listing of text and a table. Both contribute to making the text strictly organised. The presence of modality is a relevant difference from the previous texts.

3.5 Text A5: “Operation Manual for PPM and PHC”
This text was originally written in English and revised. It covers approximately four pages and in the version found with this paper, a number of pictures and figures are not included. The text is a manual for the use of both the PPM and the PHC.

The text contains a total of 10 small parts with the first one being the index. Each part has its own headline and consists of a few paragraphs. The headlines for each part will not be mentioned here since they appear from appendix 5, but a description of the text parts will be included. Part two (meaning the part immediately following the index) is made up of two small paragraphs of which the first one contains one sentence and the second one contains a list of four entries, “A” to “D”, with only clauses. Part three includes four small paragraphs, each containing from one to six sentences. Part four contains two paragraphs with the first one being the longest as it presents some seven lines of text.

Part five is one of three long parts of the text with a little more than half a page in length. Of the four paragraphs, the third represents most information with a listing made up of 16 description entries. Again, there are no real sentences included in the listing – the small text bits could be described as commands. The three remaining paragraphs contain only a few sentences each. Part six is a very short piece of text with just one paragraph and some five lines of text. Part seven covers about half a page and consists of four small paragraphs and a
listing in the end. Each paragraph contains two or three sentences. The list is made up of 10 entries, numbered from “XA” to “XJ”, and contains no real sentences except one which is added to point “XC”. Part eight also covers about half a page of text. Under the headline, the first paragraph is followed by a small list of just four terms. Then, another two small paragraphs follow, and the part finishes with a list containing 12 entries numbered from “1” to “12”. Again, only clauses are included in this list.

To round off, parts nine, ten and eleven are all small pieces of text which each cover approximately five lines and the same number of sentences.

The typical sentence of this text is short and easy to read. In comparison to the previous texts, this one is significantly longer and thus, the number of sentences is much higher. Therefore, even though most sentences are short, there are a number of long sentences as well. However, these are not very complex either. An example is taken here from the text’s part two, “Overview of the PPM and PHC area”:

‘The purpose of the PPM and PHC area is to remove the pallets from the piles automatically and to prepare the piles for a smooth operation in the Bobst machines.’

(A5: 1)

It is relevant to mention once again that the number of single clauses is fairly high. Even though they are not sentences as such, they do make up a considerable part of the entire text. This example – also from part two - is typical:

‘B Roller conveyor for empty pallets from Bobst 130’ (A5: 1)

In general, many of the sentences contain abbreviations and references to pictures and figures. This also appears from the two above examples.

The grammatical features also require some attention. In this text, some of the noun phrases tend to be rather long but most of them are short and the complexity in general is not very high. The verb phrases come in several different forms. Most verbs are used in the present
tense or the present perfect tense but the imperative is used on a number of occasions as well. This is an example from the text’s part four, “Automatic operation of PPM”:

‘To start the automatic operation, press the button RESET and afterwards press the button AUT.’ (A5: 2)

Also, the prepositional phrases are important. They seem to be less dominant in this text than in the previous ones but they still take up a reasonable amount of space.

The vocabulary used in the text is much similar to that of the earlier texts. The nouns are technical but not difficult to understand for a reader with a general knowledge within the area. Many nouns are repeated during the text and several of them are abbreviations or names taken from a very specific context. The verbs are once again mainly verbs of action or movement. Especially in connection with the imperatives, some very strong verbs are used as exemplified in the text’s part nine, “Manual operation of PHC”:

‘To operate the crane in manual mode, switch the button from AUT to MAN.’ (A5: 4)

As a final comment, it is necessary to mention that the text is incomplete, i.e. many figures and pictures have been left out. Thus, a number of references could appear either confusing or superfluous but this is due to the reasons mentioned in the beginning of this chapter.

3.6 Text A6: “Functional Description”

This text is by far the longest of the six texts included as it covers a total of some 11 pages of text. The text was originally written in English and revised, and I never finished it completely. Hence, it does contain some unclear passages – the explanation of this has been included in the introductory section of this paper. The text consists of five chapters of which only four have actually been written, and not all of these four have been written in full. The content is a functional description of the entire system.

The entire text consists of six sections. Section 1 is an introduction to the rest of the text, and the first part of the introduction contains a small index and another five paragraphs of text.
These consist of a few sentences each. Section 1.1 is small since it contains of just three lines of text apart from the headline, and section 1.2 is even smaller as it contains no sentences but just two explanations of abbreviations. Section 1.3 is just one paragraph including some five sentences.

Section 1.4 covers approximately one page of text and the main part of it is some listings and explanations of numbers. The entire number of real sentences is no more than three, and the two main paragraphs are lists which are numbered from “A” to “Z” (not all letters in the alphabet are included in any of the lists).

Section 1.5 comprises two paragraphs of text and one listing with four entries, numbered “1” to “4”. A total of eight sentences are found in this section. Section 1.6 covers almost one full page and contains several paragraphs plus three small listings. The section presents one of the longest pieces of uninterrupted text (i.e. not interrupted by tables or lists) in the entire text set.

Section 2 starts out with the headline “Functional description” and contains many small sections, each with their own number, e.g. 2.1, 2.2, 2.2.1., etc, and their own headline. Section 2.1 contains one paragraph of text and a listing with six entries, numbered from “Zone 1” to “Zone 6”. Sections 2.2.1, 2.2.2 and 2.2.3 cover a little more than half a page altogether, including one listing of five entries and some three paragraphs of text. Sections 2.3 and 2.4 are very short with a few subsections which contain just one sentence each.

Section 2.5 covers about half a page with four subsections. Each subsection contains one paragraph of text with two, three or four sentences each. The exact same description applies to section 2.6 with the exception that it includes one more subsection containing just one sentence. Section 2.7 covers one and a half pages of text and includes five subsections. No listings are found and the text is divided into a number of small paragraphs. The very first paragraph contains five sentences but none of the rest of the paragraphs presents more than three sentences.

Section 2.8 is the final subsection under section 2 and covers half a page. There are four paragraphs and one listing with four entries in the end. Again, each paragraph contains
between just one and three sentences. Section 3 of the text was never written and the only item to be described is the headline which says “Operating screens/instructions”.

Section 4 is named “Adjustments and maintenance” and is very short with only three subsections, of which only two contain more than a headline. These two subsections each include two and three list entries respectively, and the entire section only presents six real sentences.

Section 5 is the last section, covering about one and a half pages of text. The headline reads “Faults/fault finding” and a total of nine subsections are found. Each subsection includes a few lines of text, varying from just one paragraph to four small paragraphs. No paragraph contains more than four sentences. Three of the subsections are made up of a small list with numbers “1” to “3” or “5”.

As a general feature of this description, it can be said that the text consists of a lot of small parts each with their own headline and a small amount of information. The listings which appear in between the text bits contribute to this piece-by-piece structure.

The sentences of the text are very different in appearance, and the length of the text makes room for many different variations of sentence structures. However, it seems that the features are very similar to the observations from text A5. There are many simple sentences, fewer more complex sentences and a large number of individual clauses which do not form sentences. A typical sentence example would be the following:

‘Unless nothing else is stated, all position numbers refer to the electrical drawings and markings of the system.’ (A6: 1)

Even if this sentence is not very simple in structure, it is still very easy to understand. In connection with listings and headlines, there is a number of clauses as well. This example is taken from the text’s section 1.4:

‘Q = Main switch, selector switch (main switch, hand-controlled motor cover)’
The rather simple expressions of this kind contain much information which is presented in the shortest possible way.

The grammatical features in the text are many but the most significant ones are basically the same as in the previous texts and the texts show many features which are similar to the ones in text A5. Some of the noun phrases, especially in the beginning of the text, tend to be a little complex, but this is not the case for the text as a whole. The verbs used are mainly applied in the present tense but the imperative is also present in several passages. In this text, a considerable number of passive constructions appear, e.g. the following:

‘In case of power supply fault or the main panel being switched off, the emergency stop relay will be disconnected and should be reset before the restart procedure can take place.’ (A6: 17)

This example shows two occurrences of the passive voice which seems to be more dominant in this text than in the others.

The choice of words is once again very technical. Many nouns are repeated throughout the text and in general, the number of technical nouns is very high but for the technician as a reader, they should not represent any problem. The verbs used denote both existence and action and the dominance of action or movement verbs seems less important in comparison with the previous texts. A typical sentence showing many of these features is the following:

‘The pallets the system can handle have to have a size in-between the following maximum and minimum sizes.’ (A6: 2)

As a general observation of this text, especially two facts are significant. First, due to the length of the text, it is rather difficult to pinpoint the importance of specific features in comparison with the shorter texts (especially A1, A2 and A4). Second, many linguistic errors are still present in text A6, making it difficult to precisely observe features in some points.
This concludes the description of the texts which are subject to the analysis to follow in chapter 4.
4. Analysis

This chapter will contain my analysis of the texts included as appendices 1-6. After having presented these texts in detail in chapter 3, I will now carry out an analysis as according to Bhatia’s model which was discussed in chapter 2. The main purpose with this analysis is to obtain some results which should enable me to conclude something on the nature of the genre in question.

The chapter consists of two main sections. First, the analysis model from section 2.3 will be applied on the texts as thoroughly and precisely as possible. When going through each step, the degree of relevance will be considered before analysing the texts and following this, a corresponding analysis will be presented. Second, and after having analysed the six texts according to each step, the theory from sections 2.2 and 2.4 will be taken into consideration as this is also necessary in order to define the text-genre as precisely as possible.

4.1 Analysing Text: Order and Process

An analysis of the sort which will follow could easily take up a vast number of pages. Since this is not possible for a paper of this type, I will concentrate on analysing the texts in terms of the most significant features. The analysis will have to cover all six texts and hence, some limits must be defined as to the degree of detail of the investigation. As a main working model, I will not go through each text one at a time but try to analyse the texts as a whole. This decision is made on the grounds of two facts, namely that it is already known that the texts belong together and that the descriptions from chapter 3 show that the texts are similar in many ways. However, under the very detailed step 6, each text will be analysed on its own in order to ensure that the analysis will be as thorough as possible. Any considerations made during the analysis will be based on the theory described in chapter 2. Hence, each step of the analysis is directly connected to the equivalent step of the theory.

4.1.1 Step 1: Placing the Given Genre-text in a Situational Context

As described in section 2.3.2, the first task is to place the texts within a relevant context by intuition. This step is very relevant for the analyst since the consideration implied is always made when looking at any text. Even if the reader is not consciously aware of it, he will
always place the text within some kind of genre. Indeed, should the reader be unable to do this by pure intuition, he would consider it consciously and try to make a decision anyway. The main question here is, therefore: How thoroughly would it be necessary to investigate this step of the analysis in my particular case? The answer to this will be elaborated in the following by pointing to the relevant issues of the theory.

Looking through the texts for the first time, I found that the context would be of some technical sort. Based on the words chosen and the style used, it seemed clear that these texts were typical of engineering or a related topic. This observation would basically cover Bhatia’s ‘internal clues’. My prior experience with a text of this type is very limited but still I have seen a few examples of texts of the same kind. My ‘encyclopaedic knowledge of the world’ in this field is probably the aspect which helped me the most since I am familiar with technical or engineering subjects in general; however, I would not see myself as part of any specialist community within the field.

Having observed these basic facts, it must be stressed that this first step is not very important in my particular case. Since the entire text material was produced as part of an assignment made for an engineering company, I already knew from the beginning that the genre would be of a technical kind. Hence, even though my knowledge of the technical world is limited, I never had any doubts and the nature of the texts did not provoke the emergence of any surprising questions.

As a conclusion on the above, the situational context would be an engineering company or project which demands the effort of some people who need the texts for carrying out their part of the job.

4.1.2 Step 2: Surveying Existing Literature

This step is, more or less, what this paper is really concerned with and thus, the comment on this will be short. Bhatia suggests several different kinds of literature for the analyst or reader who needs it. In my case, the very subject of the paper is indeed to obtain more knowledge, and I have chosen to do this by concentrating especially on the linguistic aspects.
The conclusion here is, then, that the literature in question is the studies of genres and genre analysis, the essential of which is discussed in chapter 2. Naturally, I could have chosen to widen my horizon even further by reading literature on the subject of the texts or other related topics but this would make the entire process much too extensive for this paper.

4.1.3 Step 3: Refining the Situational/Contextual Analysis

This step introduces the first detailed investigation of the genre-text. The relevance of this is very high since the observations made will create a frame for the rest of the analysis. Bhatia’s four key areas (see 2.3.4) are all important and each of them will be dealt with in the following.

The first task is to define sender, receiver and their relationship. The sender (or speaker/writer) is known to be several different people. The texts were not originally written by the same person and the texts presented in their “final” version were all somehow modified by a translator (i.e. the author of this paper). However, the common goal of all people involved in the writing process was to produce a set of texts which could be used for explaining every detail, whether crucial or peripheral, about a technical system. This documentary material was necessary in terms of both customer needs and regulatory requirements.

The receiver (or audience) of the text material was the buyer(s) and the user(s) of the system. These people are probably not the same since the buyer of the system would be a company, probably personified by a chief technical manager or director of some sort. The users, on the other hand, would be the people employed by the company to carry out some specific tasks every day who would need the new system in order to make their job easier or faster. Indeed, the goal of both buyers and users would be to make their company more efficient by means of a new technical solution.

The relations between sender and receiver, then, could basically be described as a normal buyer/seller relationship. There are two important details in this connection. Firstly, several people are involved on both sides, meaning that the relationship is likely to be rather complex, involving many opinions, wishes and potential problems. Secondly, the receivers are English
and the senders Danish; of course, this fact implies that there may be problems of a cultural or linguistic nature. It must be kept in mind that the texts which are the central topic of this paper only partly contribute to this relationship.

Bhatia’s next focus area is a clear definition of ‘the community in which the discourse takes place’. A detailed analysis of this is neither convenient nor necessary for this paper. However, it is still important to keep this in mind as a general background for the linguistic analysis. The community in question is not easy to define precisely since many different people are involved. The discourse takes place in a business and/or engineering world and the trade which was the event happening as the background for the text material took place between two companies. This would qualify as the relevant occupational context as both engineers, business people and managers at different levels were involved at some point. In historical terms, the discourse took place in the years 2004-2005 which is considered the present. The socio-cultural context could be defined superiorly as the Western business world. The trade – and thus the discourse – took place between Denmark and England and a number of people from both countries were influenced by it in some way. Cultural differences between the countries would probably not influence the discourse very much, except for the purely linguistic problems, that is. The countries are known to be rather similar in business terms, meaning that, normally, the related areas of a trade, e.g. transportation and legislation, do not provoke severe difficulties.

The third aspect to consider in this part of the analysis is the identification of texts and linguistic traditions related to the genre-text. This aspect is needed in order to place the text in a linguistic context and as such, it is important to include as a basis for a more detailed linguistic analysis.

Considering first what Bhatia refers to as ‘the surrounding texts’, it is essential in this particular case to look at the text material as a whole. The six texts included all belong to the same “book” of text material which is included with the product in question. A number of other texts also belong to this “book”; however, it is not known exactly how many texts or how much text they comprise. Looking at the descriptions of the six known texts in general, it
seems reasonable to assume that they form a typical part of the entire material. Thus, the ‘surrounding texts’ could be said to be similar to the six texts in question.

Another way of looking at the surrounding texts would be to select one of the six texts as the central genre-text and consider the remaining five to be “surrounding”. However, this would yield a similar result as the texts are still very closely related to each other in terms of subject, structure and lexico-grammar.

As for the identification of the linguistic traditions, a consideration of the language use in technical descriptions in general is needed. Some typical features of this sort of text will be mentioned in the following, namely sentences, nouns, verbs, and (un)ordered lists.

The sentence structure is typically not very complex since a description needs to be rather straightforward and easy to comprehend. There is no need for long explanatory or argumentative passages and thus, the sentences will often be limited to one or two phrases. Many examples of this are found in the texts included and indeed, the descriptions in chapter 3 of this paper point to the fact that all texts are predominantly made up of simple sentences.

As a comment on the wording used in texts of this sort, it is inevitable that nouns are the bearing elements and absolutely necessary in order to make sense of a description. Nouns are used to point to things, processes and results when describing technical systems and thus, they will often dominate a text of this character. In general, the examples from chapter 3 show that nouns and noun phrases are very frequent in the texts A1-A6.

Another word class which is important to note is the verb class. Verbs are often chosen in accordance with the things and processes which need to be described and thus, the lexical verbs will often denote either existence or action. A typical example is found in text A5:

‘For maintenance purposes there are three screens. The first screen is COUNTER. This screen shows the number of piles that have been processed.’ (A5: 3)

The first verb, “are”, tells us of the very presence, i.e. the existence, of three screens. The next
verb, “is”, tells us something about the existence of a specific feature of the first screen, namely the name of it. The third verb, “shows”, denotes the function or action carried out by the screen, and the last verb, “(have been) processed”, denotes some other action.

One last tradition to comment on is of a different kind from the first three but still part of the linguistic structure of a descriptive text. When something needs to be described, it is often very convenient to apply some sort of listing in order to introduce a number of items or possibilities in a short and systematic manner. A typical part of a technical description is, therefore, a list with numbers or letters as entries (ordered) or just with dots or stars etc (unordered). As already pointed out in chapter 3, all texts from A1 to A6 contain lists of this kind and examples of both ordered and unordered lists are many.

Bhatia’s last aspect of refining the analysis is concerned with the subject and/or topic of the text. In the case of the texts which are relevant to this paper, the subject is, obviously, a technical system. It could be argued that the topic would be describing this system but in essence, the entire text material is concerned with the system in a descriptive and formal way. Bhatia mentions that the texts may be ‘trying to represent, change or use’ this subject. The descriptive nature of the text material means that there is no change or use involved in this particular case. Basically, the texts comprise a straightforward presentation of the technical system in terms of topics like functions (texts A1, A2 and A4), parts (text A3), and operation (texts A5 and A6).

A final consideration is needed on the relationship between the texts and the reality they represent. As mentioned earlier, the texts are needed by the people who work with the system and thus, many people have been using the texts in one way or the other. Naturally, the texts would be part of the supplementary material associated with the system and they are likely to be present where the system has been mounted, i.e. at some company in the UK. The relationship could be described in the way that the texts belong to the system as they may be needed by the system users during system operation – and they are most certainly needed in case of any problems with system operation.
4.1.4 Step 4: Selecting Corpus

In essence, the selection of corpus for this particular paper was made even before the decision of topic had been made. After this decision, however, the circumstances described in chapter 1 dictated, more or less, that the text corpus represented by the texts A1 to A6 would have to be both adequate and suitable. As it turned out, my considerations on the content and purpose of the paper led me to the decision that the texts would be applicable and relevant. However, I will spend a few lines on the three aspects mentioned in the theory behind this step. In this connection, though, the result of considering step three is included in this paragraph and therefore, I will not mention this step any further.

The genre in question here is – at first glance - a technical system description. At least the texts A1 to A4 are clearly part of this while the texts A5 and A6 take the shape of operation manuals. Thus, the question to be asked on this background is: Could these two genres be sub-genres of a super-ordinate genre, or will I be able to conclude that the two are basically the same genre? My further investigation will deal with this problem in chapter 5.

The criteria applied for deciding on these genres are mainly linguistic. In order to belong to the genre of technical system descriptions, the language used must be descriptive, informative, objective and rather simple. The structure of the text must systematic in the way that all information is presented in a logical order, and it must be easy to navigate through the text if the need for one specific piece of information should appear. These criteria are very general and in addition, of course, the topic of the text must be of a technical sort. This also applies for the genre of technical operation manuals. However, one single feature is different, namely the occurrence of directive language which would be expected to replace the descriptive language. These criteria will also be discussed in connection with this analysis in chapter 5.

4.1.5 Step 5: Studying the Institutional Context

This step is always relevant but for my particular purposes, I believe that it is not necessary to go into more detail with the institutional context. Again, the point of view of this paper is mainly linguistic and therefore, other aspects will not be described in detail. Some comments have already been included on the institutional purposes and thus, the following lines will
merely summarise a few facts which appear to be obvious, including some observations from other parts of this text. The conventions which are relevant for this analysis are predominantly of a linguistic nature.

One of the most important ways of structuring a technical text is the listing of relevant items as mentioned in section 4.1.3. The advantage of placing information on a logically numbered list is that it enables the reader to find a specific piece of information very quickly. The list provides a good overview since it presents information in small bits. Moreover, and conveniently, the reader is allowed to look for particular entries instead of searching an entire text paragraph for information. For the same reason, the parts of a technical description which consist of “normal” texts paragraphs should be easy to read and understand (for the technician, that is) and thus, paragraphs are not very long. The longer the paragraph, the more difficult it would be to find the exact piece of information needed.

Also, the logical succession of information should be mentioned. Naturally, the writer of a technical description would bring deep confusion to the reader’s mind by starting with explaining what the machine does last. In the same way, the user of a technical system would face a problem reading a manual starting with the information of how to switch off the system. Of course, most genres need this kind of order to make any sense at all but in comparison with e.g. a journalistic text, a technical text would never work without logical order. The journalist may choose to start his story-telling at the end and use flash-backs, or he may choose to present his own opinion in any part of his text, provided that he is able to ensure cohesion as he writes. Thus, a convention of order is very relevant to technical texts.

Other important conventions to be mentioned deriving from the institutional context would be the ways of using language. In essence, the features to focus on are the short and simple sentences and the very objective and informative style typically used.

**4.1.6 Step 6: Levels of Linguistic Analysis**

Bhatia’s model of analysis reaches its most detailed level with this step. Hence, I will now go through the six texts even more thoroughly in order to focus on all significant details. This
means that each text will be dealt with on its own at each of the three levels if necessary and references will be made to both the texts themselves and to the descriptions in chapter 3.

4.1.6.1 Level 1: Analysis of Lexico-grammatical Features

This first part of step 6 concentrates on the basic features of textual analysis as already mentioned in chapter 3. Hence, all texts will be analysed individually in order to obtain a solid basis for further analysis; however, an exception is made in the cases of texts A1 and A2 since these are very similar according to the descriptions and, thus, very likely to produce similar results in analysis too.

Texts A1 and A2:

The observations about these texts (see sections 3.1 and 3.2) clearly indicate that on the lexico-grammatical level, the most important features to study in detail would be the nouns, the prepositional phrases, the use of verb tenses and the features connected with sentence complexity.

The first feature to be analysed is the nature of the sentences in general. By simple count, text A1 contains 43 sentences and 2 clauses which do not form sentences on their own (e.g. A1: ‘YA. Ready to pick up a pallet’). Of the 43 sentences, 12 include subordinate clauses of one kind or the other; this number corresponds to approximately 28% of all sentences in the text. These 12 sentences could be considered a little more complex than the rest; however, the longest sentence in the entire text comprises only 27 words:

‘The control unit of the pallet handling crane has already received a signal from the main control unit with information of which roller conveyor to move to’ (A1: 1)

Despite of being the longest sentence of the text, this is neither very complex nor difficult to understand. The length of sentences and words is indeed significant in connection with sentence complexity since this is not only a grammatical phenomenon. Many words of the texts are articles, particles or prepositions which are easy to understand and do not take up much space. In the above example, the words ‘The, of, a, from, the, with, of, which, to, to’ are
important but small and as they represent 10 out of a total of 27 words, they do contribute considerably to make the sentence rather easy to read.

For text A2, the corresponding numbers are 67 sentences and 8 clauses which do not form sentences on their own. 13 of the 67 sentences contain at least one subordinate clause, corresponding to approximately 19%. The longest sentence in text A2 is the very first one (53 words); however, this length is mainly due to the many different purposes mentioned which do not make the sentence very complex in grammatical terms (see A2, page 1).

The next aspects to consider are the verbs and verb phrases used in the two texts. Starting with text A1, there are a total of 58 finite verbs used, most of them in the present tense. Of these 58 finite verb phrases, 31 (53%) make use of the present simple form while 22 (38%) appear in the present perfect form. Also, 1 is used in the future simple form and 4 in the future perfect form. An investigation of the 58 finite verb phrases in lexical terms shows that 38 (65%) contain verbs denoting either action or movement. Among the most typical lexical verbs in the text are “move”, “place”, “lower”, “stop”, “grab” and “receive”. The remaining verb phrases mainly make use of the non-lexical “be”.

In text A2, the corresponding findings are as follows: 79 finite verbs are included in the text, of which 76 are used in the present tense and one in the imperative. Of these 79 finite verb phrases, 59 (75%) represent the present simple form, 18 (23%) the present perfect form, and 2 the future perfect form. In lexical terms, 68 (86%) of the 79 finite verb phrases contain verbs denoting action or movement.

Many of the nouns of the text are repeated a number of times, and many of them are taken from a technical vocabulary. In text A1, the frequencies of the following five selected nouns are: “Pallet” appearing 37 times, “crane” 14 times, “engine” 3 times, “conveyor” 17 times, “sensor” 5 times. For text A2, the following numbers correspond to five selected nouns: “Pallet” 22, “crane” 9, “machine” 12, “operator” 6, “plate” 11. These eight different nouns are some of the most typical of the two texts and their high frequencies indicate that they are important for the topics of the texts.
According to the descriptions from chapter 3, a study of the prepositional phrases is also relevant. Thus, again by simple count, the number of prepositional phrases found in text A1 is 65. With a total of just 43 sentences plus two phrases in the text, this number is obviously very high. 34 of the prepositional phrases encountered describe a position in space (approximately 52%).

To summarise on these findings, it is clear that the most important features of the two texts are simple sentences, verbs used in the present tense, action and movement verbs, repetition of technical nouns and a high frequency of prepositional phrases. All these grammatical items are common in descriptive texts and the vocabulary used leaves no doubt that the texts do belong to a technical context.

**Text A3**

This text is very different from the first two and as mentioned in section 3.3, the only grammatical feature to investigate in detail are the noun phrases which make up the entire text as such.

Since there are no other features than noun phrases present in the text, there is no possibility for comparing frequencies of different features. The main topic of interest is the use of nouns which is very technical. Under the second column, “Part”, there are 126 noun phrases of which the last 35 seem to contain proper names while the rest contain specific technical references. 39 of the 126 noun phrases present a number of some kind and between 30 and 45 of them show a textual abbreviation (this number cannot be defined exactly as some of the text bits which may look like abbreviations may just as well be proper names).

These are some very basic observations made on the grounds that there is not much to be said about the grammar of a text which, in essence, is a list of items. The content of the text is very technical and the reader needs to be familiar with the items on the list and the system they belong to in order to understand all names, numbers and abbreviations. The most important grammatical feature of the text is also the only significant one, namely the noun phrases.
Text A4

This text is described in section 3.4 and appears to be very similar to the texts A1 and A2. Hence, the most important features to focus on in this analysis are the nouns, the prepositional phrases, the use of verb tenses and sentence complexity.

Once again, the first task will be to analyse the sentences of the text. The total number of sentences is 39 and 15 of these contain one or more subordinate clauses, corresponding to approximately 38%. In addition to the 39 sentences, there are 8 clauses which do not form complete sentences, and there are several more single phrases in the table on page 2. Most of the 24 simple sentences are short and the 15 sentences featuring subordinate clauses are not more complex than the following example:

‘The control system consists of 1 central power panel with a Siemens S7 PLC or a power panel that is linked to the top level control system.’ (A4: 2)

Even though this is one of the most complex sentences in the text, it could not be considered difficult to understand. Again, several factors contribute to this – at least for the technician - rather easy reading. The following sentence, for example, presents many small words:

‘- The hoist platform is elevated up to the curtain, the curtain is retracted and the stack of sheets falls down onto the pallet.’ (A4: 1)

This sentence example contains 23 words but is not complex or difficult in any way. In addition, the 11 words ‘The, up, to, the, the, and, the, of, down, onto, the’ are small, making the sentence even more simple in structure.

The verbs of the text are mainly used in the present tense. A total of 57 finite verb phrases are found in the text of which 33 (58%) are used in the present simple form and 24 (42%) in the present perfect form. In lexical terms, the verbs used are, once again, mainly expressions of movement or action. Indeed, 33 (58%) of the 57 finite verb phrases contain a verb of this kind. It is noticeable that the modal verb ‘must’ appears 11 times while another modal form, ‘have to’, is found once. Hence, 12 of the 57 finite verbs are modal verbs; this corresponds to
a percentage of 21. All these modal verbs belong to the same part of the text as they are included in the paragraph under the headline ‘Minimum Requirements for the Electrical System’ on page 2.

In terms of the use of nouns, the text is very similar to the texts A1 and A2. Most of the nouns are taken from a technical context and many of them are repeated several times. Some examples are: “Pallet” appearing 43 times, “conveyor” 17 times, “hoist” 8 times, “system” 13 times, “platform” 7 times. All of these examples are typical expressions in a technical context and the repetition of such words indicates that they are very central to the text.

The prepositional phrases of the text also seem important. A total of 71 prepositional phrases are found in the text, most of them appearing within the 39 sentences. This corresponds to almost two prepositional phrases per sentence; this is a high frequency considering that the sentences are rather simple in structure and short in length. Of the 71 prepositional phrases, 35 (50%) denote some positioning in space.

In conclusion, the results show that the most important features of text A4 are the same as in the case of texts A1 and A2: Simple and short sentences, verbs used in the present tense and the presence of many action and/or movement verbs, technical nouns and prepositional phrases. In lexico-grammatical terms, the main difference from texts A1 and A2 is the inclusion of modality in the last part of the text. This indicates a different language function, i.e. the directive function which is not found in texts A1 and A2. However, the general features of text A4 still underline that the context is technical.

Text A5
With this text, the analysis of the two rather long texts begins. Focus will be on features similar to the ones mentioned in connection with the previous texts since these are still central according to the descriptions from chapter 3. In the present case of text A5, the analysis will concentrate on the sentences, the verb phrases and the applied vocabulary.

The entire text contains 86 sentences plus 48 clauses which do not form sentences. Most of the sentences are short but still, there are 32 (37%) of the 86 sentences which contain one or
more subordinate clauses making them a bit more complex. In addition, some of the sentences present some rather long noun phrases as for instance this example:

‘Only a qualified operator with high knowledge of the system functions may replace the central control system and manually set a signal to the PPM.’ (A5: 3)

Here, ‘a qualified operator with high knowledge of the system functions’ is an unusually long noun phrase which contributes to making the sentence relatively complex. However, the sentences in the text in general are not very long; a typical example of one of the long sentences is the very last one in the text:

‘After this change in positioning the crane may be switched from MAN to AUT and the automatic cycle will continue from the point where it was interrupted.’ (A5: 5)

This sentence contains a total of 27 words but again, it should be noted that many of the words are small. In the above example, the 12 words ‘After, this, in, the, be, from, to, and, the, from, the, it’ are all small items with a limited significance in lexical terms, meaning that the sentence as a whole is still easy to understand. It makes the sentence even less complex that the 86 sentences are accompanied by another 48 single clauses which are used as headlines and in listings.

The verbs of the text show a broad spectre compared to the previous texts. Still, the present tense is widely represented throughout the text but other forms are also in use. In total there are 122 finite verbs in the text and they are divided into the following classes: 41 finite verbs in the present simple tense, 32 in the imperative, 27 in the present perfect, 12 in the future tense, 5 in the present progressive and 2 in the past perfect. These numbers correspond to the following percentages: present simple 34%, imperative 26%, present perfect 22% and future 10%. These figures show verb pattern similar to the one observed in texts A1 and A2 with the only main difference that in addition, the imperative is very significant for text A5. It should be mentioned that the modal verb “may” occurs a few times in text A5 but in comparison with text A4, modality has only very little importance.
In lexical terms, many of the technical nouns in the text are repeated in the same way as in the previous texts. Some examples of such nouns are: “Screen” appearing 27 times, “position” 24 times, “operation” 21 times, “pallet” 9 times, “pile” 14 times. In addition, a number of abbreviations (e.g. “PPM”, “PHC”) and proper names (e.g. “RESET”, “COUNTER”) dominate the text. The proper names are only mentioned a few times while the abbreviations occur very often: “PPM” appears 39 times and “PHC” 13 times. The occurrence and repetition of these words again point to the conclusion that the subject is taken from a technical context.

The above observations from text A5 resemble the results already presented from texts A1 to A4. The important features of the text are the simple sentences which are easy to understand – this is also the case for the many individual phrases which do not form sentences. The most dominant verb tense is the present tense but the significant presence of the imperative suggests the use of directive language function along with the informative and the descriptive. The vocabulary is very technical and leaves little doubt about the subject of the text.

Text A6
As already explained, this text is by far the longest of the six texts to be investigated. The lexico-grammatical analysis will focus on the main elements mentioned in the description from section 3.6. Hence, the following comments will include considerations on the sentence structure, the verb tenses and the vocabulary.

To start with the sentences of the text, it contains a total of 183 sentences and 119 non-sentences. Of the 183 sentences, 92 could be set to belong to the more complex kind since these contain one or more sub-ordinate clauses. This corresponds to 50% of the total number of sentences which is a little more than the results from the previous texts. However, with the very high number of non-sentences, the general complexity of the text declines, meaning that as a general result of this analysis, the sentence complexity is about the same as for texts A1 to A5.

The non-sentences of the text are typically used as headlines or as list entries in the same way as previously observed. An example of this from the text is the following:

‘J = Hands-on system (pushbuttons, turning buttons)’ (A6: 3)
This piece of text brings much information to the reader using as little space as possible. Hence, a technical expert will save time when reading the text. In this way the text will appear to be very easy to use for the reader and the complexity would not be considered a problem.

The verb forms are many in a text of this length and in the particular case of text A6, an analysis is difficult to carry out precisely since the verb forms is one of the features which has not been revised and thus, some of the verbs are difficult to classify precisely. However, the numbers used in the next lines represent the verb forms of the text as adequately as possible. The total number of finite verbs in the text is 336. The dominant verb tenses are the present simple tense with 190 appearances (57%) and the present perfect tense with 98 appearances (29%). Other tenses used are the future simple and the future perfect which each appear 16 times (corresponding to 5% each), the imperative with 9 appearances and the present progressive with 7 appearances. Modal verbs are found in 31 occasions and most of these appear in section 5 of the text.

The lexical features of the text are very similar to those of the previous texts. Most nouns are taken from a technical context and many of them are repeated throughout the text. An example is the word “pallet” which appears 61 times. Many of the repeated nouns are the same as the ones dominating the previous texts; hence, “pile”, “position”, “conveyor” and “system” are also very common in text A6.

The summarising of these findings is that text A6 shows many of the same features as text A5. The sentence complexity is fairly low, and the applied vocabulary shows use of many technical terms. The main verb tenses are the present simple and the present perfect, and modality is included in some parts of the text. Again, the text must belong to the technical genre and include the informative, the descriptive and the directive language function; the latter would be present to a lesser extent, though, since the imperative is only represented through a few appearances.

**General Summary**
There are a number of similarities in the findings of the above analysis which it is useful to summarise in order to provide a overview of the results. The observations from all six texts
show that they have a fairly simple sentence structure as they are dominated by simple sentences and individual clauses. The vocabulary used is basically the same in all texts since it consists of many technical nouns and verbs which are typical in technical texts. The verb forms used are mainly the present tense and the present perfect tense. However, in terms of verbs, the six texts differ significantly. Texts A1 and A2 show no use of modality, and text A3 includes no verbs at all. Texts A4, A5 and A6 all include modality and the imperative is also used in these texts at some point. These overall results will be very central to the conclusion on the entire analysis which will be presented in chapter 5.

4.1.6.2 Level 2: Analysis of Text-patterning

This part of the analysis focuses on the functions of specific textual features. The analysis will focus on two main features which are typical in technical texts, namely the use of passive constructions and nominalisation. Since these features apply to all texts, the analysis will concentrate on these two main subjects in general and not on each text specifically.

The Passive Voice

In a technical description of machinery or systems, the passive voice is often used in order to avoid reference to specific subjects in a sentence. This “hidden” subject may be either unknown or of secondary importance and the focus of the text will typically be on the machine or system in question, not on people or things around it.

The above lexico-grammatical analysis shows that the verbs are used in the perfect tense in all texts except text A3. This perfect tense is very common when applying a passive voice and instances of the non-existent subject can be found in connection with the perfect tenses in all five relevant texts. Some examples will be mentioned in the following pages.

Text A1 describes the functions of a pallet handling crane, meaning that this crane is the centre of focus throughout the text. With this focus as reference, many functions can be described precisely without mentioning the subject, i.e. the pallet handling crane, thereby saving space through using the passive voice:

‘3. The pallet is placed in horizontal position. The pallet is pressed in the machine so that it cannot be removed.’ (A1: 1)
In this example, the passive voice is used three times and in all three instances, the text does not reveal who or what the subject might be. However, since this is not relevant to mention, the text is still perfectly understandable in the context. The reader would know that the pallet handling crane “places” the pallet and “presses” it into position. The subject for the verb “remove” is unknown but the applied passive suggests that since removal should not be possible, no active subject should exist.

Text A4 describes a delivery section of the system and part of the text focuses on the flow of pallets through the system. With this flow as the central topic, the text describes what happens to the pallets, often by using the passive voice in order to avoid mentioning the subject:

‘- The stack with 6 pallets is moved from position 5 to position 6’ (A4: 1)

The use of the passive voice in this example ensures that focus is put on the function – in this case, a change in position. It is not significant to mention who or what “moves” the stack. The important piece of information is that the stack can be found in position 6 and that it is ready for the next move or action.

Text A6 comprises several topics and shows a relatively high frequency of the use of the passive voice with the present perfect tense alone represented through 29% of the finite verb phrases (see 4.1.6.1). A typical example is found under the headline “Electrical numbering”:

‘The entire system has been marked with cable numbers and signs on motors, valves and sensors etc. The numbering has been based on the following principles:
SZZTNFF.’ (A6: 2)

These two sentences tell the reader that some numbers have been assigned to the specific system parts and that a certain numbering system has been used for this purpose. However, the text contains no information at all as to who or what performed these actions. Again, the subject in question is unknown. It is likely that one or more engineers or technicians have been participating in this numbering process but for the present text on the functional
description of the system, this information is not necessary. Hence, the writer has saved space by leaving out information and using the passive voice; furthermore, the text is easy to read and understand.

The passive voice is typical for the technical genre in general and the above examples show that this feature is common in the texts which are subject to the analysis of this paper. However, the passive voice does not reveal any significant differences between the texts and thus, the outcome of the analysis of this feature is mainly a confirmation that the texts belong to the technical genre.

**Nominalisation**

Nominalisation is another typical feature of technical texts as it is used to increase the amount of information in order to save space. In this way, the text will be more difficult to understand for people who are not technical experts but at the same time, it will help expert readers as they may save time when concentrating on a text written to provide only relevant information.

The presence of nominalisation in a text is mainly a question of the applied vocabulary. For instance, the word “nominalisation” itself is a nominalisation since it is derived from the verb “nominalise”. Nominalisation implies that verbs are transformed into nouns (e.g. implication, transformation) in order to save space. Many passages can be expressed in a short and dense form if a single noun is used instead of a verb phrase. A number of examples from the texts for analysis will be presented in the following.

The most frequent nominalisations of text A1 are words like “handling”, “conveyor” and “movement” which are derived from the verbs “handle”, “convey” and “move”. An expression which is used often in several of the six texts is the noun phrase “the pallet handling crane” (in some instances, the abbreviation “PHC” is used to obtain maximum space-saving). Without the concept of nominalisation, this noun phrase would take the following form: “the crane which handles pallets”. In essence, only one word (“which”) is added in comparison with the compact noun phrase but with the necessity for using the phrase numerous times, one word saved each time is of considerable importance.
Text A3 (on spare parts) is the text without verbs; however, the number of noun phrases and, thus, nominalisations is significant. For instance, the expression ‘Chains for elevation function’ (A3: 4) could be written in a more simple way. “The function of chains which elevate [something]” would be a possible re-writing of the phrase; however, this is only a suggestion since the exact meaning of the expression is not known. In any case, the noun phrase used in the text is the shortest possible way of describing the spare part in question. Other examples of nominalisations from this text are “contactor” and “inverter”.

Text A5 contains many examples of nominalisations. An example is the very frequent word “operation” which appears 21 times in the text (see 4.1.6.1). The verb “operate” can be changed in several ways to represent a nominalisation. For instance, the noun “operator” is also found in the text. “Operation” is the function or process happening when someone operates. The “operator” is the person who operates. Thus, nominalisation can be used on different levels with the same verbs as starting point.

Again, the use of nominalisation is typical for technical texts and the above findings show that the texts for analysis contain many examples of this feature. However, as in the case of the passive voice, there are no indicators that the use of nominalisation should provide any reason for dividing the six texts in a systematic way. Thus, the relevant result from the findings would be to assume once more that the texts are part of the technical genre.

4.1.6.3 Level 3: Structural Interpretation of the Text-genre
Bhatia’s theory on structuring text within specific genres as described in section 2.3.8.3 applies to all texts analysed here. However, text A3 still represents a special case since the structure is mainly constructed on the basis of a simple row of numbers. Hence, text A3 will not be considered here but as for the rest of the texts, a structural analysis will be carried out.

**Text A1 & A2**
These two texts have a very similar build-up and can be analysed according to the following moves:

1. Stating the purpose(s) of the machine
2. Describing the status of the machine in default position
3. Describing the operation cycle of the machine
4. Presenting references used in move 3

This structure is very simple since there are no further details to be considered. As it appears from the texts, they are very straight-forward and the information included is for the use of the machine operators when operating the machines. Hence, there is no information on anything else and in this way the communicative purposes are strictly obeyed. The purposes of the two texts are to inform the operator about the functioning of the machines. The order of the moves is logical and the communicative purpose of each move is directly connected to the communicative purpose of the previous move. Logically, the writer starts out by stating the purpose of the machines. This piece of information may not be necessary at all times but it is still needed in order to avoid any confusion. Then, the writer describes the operation cycles of the machines. Of course, as the numbers found in the texts imply, there is a sequence of functions connected with these cycles; these functions are described chronologically. The last move is to include lists of specific references used in the cycle descriptions. This move is necessary in order to clarify the content of the previous move.

The two texts can both be described as belonging to this specific move structure and thus, they are similar in terms of structural interpretation.

**Text A4**
A move structure for this text could be arranged in the following way:

1. Stating the purpose of the machine
2. Presenting the machine parts
3. Describing the operation cycle of the machine
4. Stating the needs for machine operation
5. Stating the features of each machine part

The structure resembles the one observed in texts A1 and A2 though a couple of additional steps are present. The structure is still very simple and straightforward and there is no confusion in terms of the communicative purpose which is to inform the users of the machine in question about the functions and requirements for machine operation. The order of moves
is once again completely logical. The first move states the purpose of the relevant machine while the next presents the parts which make up the machine. This information is not included in the texts A1 and A2 but it would seem beyond any doubt that the writer has included this move in text A4 because it is relevant here. Move three then describes the operation cycle and in line with texts A1 and A2, two additional moves are included stating the requirements for machine operation. Arguably, move 4 and 5 could have been placed before move 3 but in this case, it is more reasonable to start with the description of machine operation since this is indeed what is most interesting.

Thus, the move structure of text A4 is not very different from the structure of texts A1 and A2. Hence, these three the texts are rather similar in terms of structural interpretation.

**Text A5**
A move structure for this text is suggested as follows:

0. Table of contents
1. Describing purpose and presenting machine parts
2. Presenting application for machine 1
3. Describing operation for machine 1
4. Describing operation for machine 1
5. Describing default position for machine 1
6. Presenting application for machine 1
7. Presenting application for machine 2
8. Describing operation for machine 2
9. Describing default position for machine 2
10. Describing operation for machine 2

There is no doubt that this move structure is rather confusing and not very logical. The individual moves as such are reasonable but the order could be better. When looking at the text, it becomes obvious that the moves are presented under their own headline and thus, the headlines make up the structure and help the reader understand the text. However, the sequence of moves is confusing because two machines are presented in different ways. The
logical order presented in texts A1, A2 and A4 should be followed in the rest of the texts as well.

Thus, alternatively, the move structure could be described as follows: The table of contents has been labelled move 0 since it does not affect the general text structure. The moves from 1 to 6 would have been better organised in the sequence 1, 5, 3, 4, 2, 6. However, it would be reasonable to place move 2 immediately before move 3 since move 2 includes information on how to access machine operation. For machine 2, the logical move sequence would be 1, 9, 8, 10, 7 (move 1 applies to both machines). Again, move 7 would be better placed before move 8 due to the specific content.

Analysing the move structure of text A5 is fairly simple but it must be kept in mind that this text has been edited extensively. The version appearing in the appendix does not include a number of drawings and pictures which may have contributed to making the move sequence more logical. The overall impression of the text structure is still that it is easy to follow as the headlines for each paragraph introduce the content.

**Text A6**

This text is significantly longer than the preceding ones and thus, each move will contain more text. A reasonable move structure for the entire text would be the following:

1. Introducing the contents of the text to come
2. Describing system functions
3. Describing system applications
4. Describing system maintenance
5. Describing system fault finding

Obviously, this move structure is derived directly from the presentation of text content which is found in page 1 of text A6. This shows once again that a move structure can be described in terms of the text’s progression in the same way as seen in the case of text A5. The text itself is structured in a simple way as the headlines of each section and subsection tells the reader exactly what to expect from the next few paragraphs. However, as text A6 covers many
pages, it is also possible to apply a new move structure under each of the above five moves. This is very relevant for move 1 which shows the following structure within:

1.1 Introducing text content (section 1)
1.2 Introducing references (sections 1.1 and 1.2)
1.3 Describing requirements for system items (section 1.3)
1.4 Describing numbering system (section 1.4)
1.5 Describing emergency situation (section 1.5)
1.6 Describing system operation (section 1.6)

Here, each move follows the preceding one in a logical way as the writer attempts to inform the reader about all significant details. The writer has much freedom in organising the information of the first section of the text since it functions as an introduction for the following sections. Hence, the sequence of moves could be switched around without confusing the reader. This possibility is also enabled by the very simple text structure with headlines precisely describing each part of the text.

It is possible to apply a third level of move structure analysis; thus, the following moves can be observed under the above move 1.1:

1.1.1 Stating purpose of the present text
1.1.2 Presenting the content
1.1.3 Repeating purpose
1.1.4 Referring to additional sources
1.1.5 Stating relevant use of the present text
1.1.6 Stating text reference system

These moves are arranged in a very detailed way; hence, they refer to no more than two sentences each (the specific division of moves is marked in the appendix, text A6, page 1). The moves now reveal a structure which is not only applied for an informative purpose as an argumentative element is also included. The first two moves follow the lines of the observations from the previous texts; however, the third move is a repetition which seems
unnecessary. The only explanation for repetition, thus, must be to emphasise the importance of the issue repeated. The reason for doing this may be found in move 1.1.4 which encourages the reader to seek further information using a directive language function through modality and the imperative. Obviously, the writer’s opinion would be that the present text should be sufficient. Hence, the inclusion of moves 1.1.3 (as already mentioned) and 1.1.5 which underlines some of the useful information found in the text. Move 1.1.6 is equivalent to some of the moves from the previous texts as it states the system of reference of the present text.

In general, the move structure of text A6 resembles the one from text A5. However, depending on the level of analysis, it may be possible to find some differences as we have seen with the above example. On the first level of analysis, the exact sequence of moves is not necessarily the most logical but the text structure in itself helps the reader understand the contents of the text. As observed in section 4.1.6.1, much of the text contains descriptive and informative language, meaning that the main purpose of the text would be to inform the reader about the subject of the text.

**General Summary**
The move structures of the texts resemble each other and especially the results for texts A1, A2 and A4 are very similar. All texts are mainly descriptive and informative, meaning that the writer has reasonable freedom to structure the text in any way he likes. This means that the exact sequence of moves can be arranged in different ways within the limitations of logic. For instance, describing the purpose of something should always be included at the beginning of a text while describing the different functions could be presented in different sequences and varying order depending on the focus of the writer. As a general observation of the results from all texts, there is little doubt that they make use of similar move structures and thus, based on analysing structure, they are likely to belong to the same genre.

**4.1.7 Step 7: Specialist Information in Genre Analysis**
This final step of the analysis is described by Bhatia as being very significant (see section 2.1.7). However, for my purposes, there is no need to go further into the engagement of a specialist for help and advice. In the aspect of specialist information, the important fact of this paper is to be aware that the texts chosen for analysis were made by technicians working for an engineering company. The translating and revising the texts has not changed the fact that
they are still produced and rooted within a technical context. Hence, the most efficient way of exploiting expert information would be to ask the same people once again if they would see the texts as belonging to the technical genre. The answer to this question would definitely be the same.
5. Discussion

This chapter will focus on the results presented in chapter 4 and try to connect theory and analysis in a reasonable way. During this evaluation of the analysis, two main focus areas will be touched upon. Most importantly, an assessment of the nature of the analysed texts will be included in order to determine which genre they may belong to, and how to describe this genre. Also, an assessment of the relevance of the analysis model will be included with the objective of trying to determine whether the model is useful and adequate for an analysis of the texts in question. However, step 7 will not be considered any further since it has not been applied in the present paper; thus, the theory on this step must stand for itself. The following comments will comprise both the results of the analysis model and the theoretical considerations from sections 2.1 and 2.2.

5.1 Evaluation of the General Analysis, Steps 1-5

The results of the preliminary steps of the analysis show that there is no doubt that all texts belong to the technical genre. Steps 1 and 2 function as a soft start for the analysis as they cover some basic considerations which do not reveal any decisive information. The intuitive decision that the texts are used in a technical context and the logical choice of necessary literature are both part of the necessary introductory actions for this paper.

Step 3 is more advanced and shows as a general result that the six texts are deeply rooted within the technical context. The observations on sender, receiver, user and content all point to this conclusion. In addition, the aspect of looking at the text material as a whole shows that the six texts for analysis belong together. In terms of content and structure, they resemble each other but still they are far from similar. This result is emphasised by the observations on linguistic traditions which show that the six texts have many features in common.

Step 4 introduces a couple of important aspects to this discussion. After having placed the texts within the genre of technical system description, the question is asked whether all six of them are actually covered by this label. There are some significant differences between texts A1, A2, A4 and texts A5, A6. Based on the results of the analysis carried out in step 6, it would seem that it should be possible to place the texts within different genres, and step 4
already introduces this possibility. Since the language functions represented in the texts are different, the communicative purposes may also differ. Based on the criteria for placing texts within a given genre, it is suggested that texts A5 and A6 belong to the genre of technical operation manuals. This result will be discussed further in the following pages.

Step 5 takes into consideration the order and structure of the texts which underlines the previous results. The structure is very important in technical descriptions and the six texts in question all qualify as being reasonably well-structured. As a general conclusion on steps 1-5 then, the six texts belong to the technical genre but more results from the analysis must be taken into consideration before a more precise conclusion can be drawn.

The relevance of these first five steps is varying. All steps are necessary to consider but some of the results are either very obvious or obtained several times. I have chosen to go through all steps in order to provide a qualified answer to the question of relevance and in the case of these first five steps, especially the steps 1 and 2 seem less important than steps 3, 4 and 5. Step 3 is the most relevant since it lays the grounds for further considerations and analysis.

5.2 Evaluation of Step 6: Lexico-grammatical Analysis

The lexico-grammatical analysis is based on a number of specific features chosen on the grounds of the observations made in steps 1 through 5. The results for each of these features will be assessed in the following.

The sentence complexity of the texts is generally very low. Combined with a large number of short sentences in each text, the presence of a considerable amount of clauses and phrases standing on their own contribute to making the texts simple grammatical terms. The results from section 4.1.6.1 show that for texts A1, A2, A4 and A5, only about one third or one fourth of the sentences could be said to be a little complex. Text A6 contains 50% rather long sentences and thus qualifies as the most “advanced” of the six texts. However, a reading through the text quickly convinces the reader that complexity would never be a major problem.
The analyses of the use of verbs in the texts yield several results. The dominant verb tense used is the present tense which is often seen in connection with descriptive texts. The present simple form is normally used for this purpose because a description must be precise and straightforward and the time aspect is not important. However, the present perfect form is also common throughout the texts. This emphasises once more that the texts belong to the technical genre. The perfect tense can be used to apply the passive voice which is very common in technical texts. The simple and perfect tenses are most common but other verb forms are found as well and especially the presence of the imperative in texts A5 and A6 is interesting. The imperative is normally used to provoke the reader to take an action after having read the text. This is an example of the directive language function which represents a significant difference from the purely descriptive texts A1 and A2. However, texts A5 and A6 also contain many examples of the descriptive language function and in this way they resemble the rest of the texts in terms of verb use. Modal verbs are included in texts A4, A5 and A6, meaning that these texts include another feature to make them different from the remaining texts. Especially the use of the modal verb “must” in text A4 indicates the use of the directive language function. Thus, all three texts contain the directive language function. Text A3 with no verbs could be considered to make use of only the informative language function while texts A1 and A2 are both informative and descriptive.

The third very important feature is the use of nouns in the texts as many of these are repeated several times through the texts. The word “pallet”, for instance, is present in all texts (except for text A3). This repetition of specific nouns clearly indicates that the subject of the texts is the same. The texts may describe different aspects of the subject and thus, “pallet” appears 37 times in the very short text A1 but only 9 times in the longer text A5.

Of other results it should be mentioned that prepositional phrases are important, especially in the texts A1 and A2. The very descriptive forms of these texts explain this high frequency since the prepositional phrases are used to place things in time and space; this need is very common in descriptive texts.

The overall result of the lexico-grammatical analysis can be summarised in the following way (not mentioning the general fact that all texts show a simple sentence structure):
Text A1: Present tense verbs, many prepositional phrases, informative, descriptive.

Text A2: Present tense verbs, many prepositional phrases, informative, descriptive.

Text A3: Informative

Text A4: Present tense verbs, modal verbs, informative, descriptive, directive.

Text A5: Present tense verbs, modals and imperative, informative, descriptive, directive.

Text A6: Present tense verbs, modals and imperative, informative, descriptive, directive.

With these results it will be possible to arrange the texts within different categories; this will be done later on in this chapter.

This part of the analysis is essential since it provides the analyst with some very useful data. Bhatia’s theories acknowledge lexico-grammar as having “only” limited importance to the analysis as a whole. The above results clearly have high importance in terms of contributing to a final conclusion. However, the inclusion of language functions as part of lexico-grammar is open for debate. Arguably, Bhatia would be likely to discuss this aspect in connection with communicative purposes but it has been included here as it is directly linked to the verbs of the texts.

5.3 Evaluation of Step 6: Analysis of Text-patterning

The text-patterning analysis concentrated on two main areas, namely the passive voice and nominalisation. These two features are considered very reliable as indicators of a technical style in text writing.

As already mentioned in section 5.2, the passive voice is often represented through the use of a perfect verb tense. The analysis shows that the perfect tense is used many times in all texts except for text A3. The function of this passive voice is to move focus away from unimportant agents and, thus, make the text shorter and more precise. In technical language this style of writing is very common as it enables the writer to present what may be a complex subject in an adequate way. When information is to be given on a certain technical system, it is advisable to spend as little space as possible on mentioning other things. The technician only needs specific information on the system functions; i.e. he wants to know that “the system is turned on by pushing the button” and not “Mr X turns on the machine by pushing
the button”. The very high frequency of the passive voice in the texts is a strong indication that they belong to the technical genre.

The second feature to be considered is the use of nominalisation. As already concluded in section 4.1.6.2 of the analysis, the presence of nominalisation indicates that the text genre may very well be technical. The presence of nominalisation in the texts is clear but not very dominant; the reason for this may be that the simple sentence structure is more important to the writer of these specific texts. Other technical genres, e.g. scientific articles, normally show a much higher frequency of nominalisation.

The features of the passive voice and nominalisation tell the analyst something about the text genre and in this case, there is little doubt that the presence of both features point to the fact that the texts for analysis do belong to the technical genre. However, these features do not reveal anything as to a possible difference in genres on a more subtle level. As shown in section 5.2, the six texts show a number of differences in terms of language use but the presence of these differences is not emphasised by the analysis of text-patterning. Thus, the final conclusion on differing genres cannot be drawn at this point.

The relevance of this step depends on the level of analysis. The features analysed in this part of the paper are typical of technical language and thus, the only result from the analysis is an additional proof that the texts belong to the technical genre. As this has been seen already from several of the previous steps, the importance of this specific step is not very high. The texts subject for analysis do not show any other obvious features for analysis in this connection. Hence, the results are limited to the function of extra but not vital information. For other kinds of texts, however, the analysis of text-patterning may be very significant.

5.4 Evaluation of Step 6: Structural Interpretation

This part of the analysis has yielded a different view on the texts. The move structures show that the texts are structured in a rather similar way. However, some differences are present, especially in respect of the amount of information of each text.
The first aspect to note about the move structures is that with all texts being very much informative and descriptive, the moves will typically be meant to fulfil the same communicative purpose. However, as the lexico-grammatical analysis has revealed some different language functions, the level of analysis of move structures may help the analyst distinguish between different purposes of the moves. In this particular case, the results for text A6 show that in the third level of move structures, the analyst can discover some important results. In this case, move 1.1.4 makes use of the directive language function as the reader is encouraged to seek additional information. This result could have been obtained already at the lexico-grammatical level; however, to draw a similar conclusion here, the analyst would have needed to interpret his results (i.e. the findings of modal verbs). The move structure, on the other hand, provides this result directly as the point of view of the analysis is different. Move structures are very much concerned with meaning and purpose of text, not as much with the form of it.

The general result of the move structure analysis shows, however, much similarity between the five analysed texts. Naturally, this outcome must be interpreted as an emphasis of the fact that the texts belong to a technical genre which makes them similar in content and structure. The language functions used are the same throughout the texts with the one difference that the directive language function is used in texts A4, A5 and A6. In the case of the latter, the example of move 1.1.4 shows that when the directive is used, the text speaks directly to the reader and not just on the subject. Hence, the communicative purpose is different in comparison with other parts of the text.

The relevance of this structural interpretation is fairly high but the results obtained from it do not suffice standing on their own. The problem with move structures is that as long as the purpose of the text for analysis remains unchanged, the move structures do not tell the analyst much. This is clear from the analyses of texts A1 and A2. However, the strength of move structures is that they provide a clear explanation for differences in text form as they are connected to the communicative purposes of a text. This is seen form the structural analysis of text A6. Hence, move structures may be very usefully applied to some texts but not to others.
5.5 Language Functions and Communicative Purpose

This section will concentrate on the language functions of the six texts in order to classify them according to their communicative purposes.

Texts A1 and A2 contain only the informative and descriptive language functions. Hence, their communicative purposes are limited to informing the reader about the subject in a descriptive way. The content of the texts tells the reader about some specific machines and the functions of these. Based on the results of the different levels of analysis, the texts fall into the category of technical system descriptions. Text A3 belongs to the same category as it is only informative and functions as additional system information for some of the other texts. The results from the analyses of text A3 reveal only that it is very strictly structured and contains only few grammatical features. The name of the text itself, “List of Spare Parts”, leaves no doubt that it belongs to the genre of technical system descriptions – possibly as an appendix.

Text A4 shows an additional feature in terms of language functions since the directive is included alongside the informative and descriptive. However, the directive is derived from the informative in this text as the reader is informed in a strict way that the system requires certain conditions to be fulfilled. For instance, the sentence ‘the system must contain all necessary safety equipment’ (A4: 2) is trying to provoke an action from the reader, namely to ensure that the safety equipment is present. The text itself considered as a whole is still a description (e.g. the title says “Functional Description”), meaning that despite of the presence of the directive language function, the overall communicative purpose is informative. Hence, the most suiting category for text A4 remains the technical system descriptions.

Text A5 is even more different than text A4 as it contains the informative, the descriptive and the directive language functions. Indeed, the title of this text is “Operation Manual” and the very high frequency of imperatives leaves little doubt that this text belongs to the category of technical operation manuals. Throughout the text, the descriptive and directive language functions are used extensively and the communicative purpose is clearly to tell the reader how to operate the system. Hence, the text tries to provoke an action from the reader and thus, the directive language function is considered most important in this text.
Text A6 contains the same important features as text A5 but the imperative is not important in the same way, considering the extent of the text. However, there is no doubt that the communicative purpose of the text is to describe the system to the reader and, where necessary (as in the example from section 5.4), to provoke the reader to act. The main language functions are the informative and the descriptive and despite of the presence of the directive, it does not seem significant enough to categorise this text otherwise than within the category of technical system descriptions. Indeed, the text itself tells the reader at the very beginning that it is intended to describe parts of the system.

5.6 Theory and Analysis: Genre or not?
In this section, some comments will be made on the theoretical assumptions from chapter 2 in relation to the texts subject for the analysis in chapter 4. The theories of Swales and Bhatia will be considered in terms of their application to some technical texts taken from “the real world”, i.e. the texts from appendices 1-6.

Swales’ basic definition of genre includes at first the comment that for one or more texts to belong to a genre, a class of related communicative events must be present. The communicative events of texts A1 to A6 are related in the sense that all texts are dealing with the same technical subject in an informative way. Hence, this first requirement is fulfilled. Next, Swales takes into consideration the communicative purposes which must be shared by texts belonging to the same genre. In this specific case, five texts share the function of description while one (text A5) is more concerned with directing. This means that according to Swales’ theories, text A5 belongs to a different genre than the rest of the texts.

Swales’ observation regarding the prototypicality within genre-texts does not help the analyst very much further in this particular case. It could be argued that the five texts apart from text A5 are relatively different as prototypes but still possess enough common features for being assigned to the same genre. However, text A5 could fit into this consideration as well. In order to take the next step, it is necessary to look at Swales’ next statement. Hence, the conventional aspects of the texts need to be assessed. Indeed, as the analysis has showed, a number of conventions are present. The straightforward language, the listings, the use of the passive voice and the repetitions in lexical terms belong to this aspect. Most of these are
present in all texts; this time, only text A3 seems to fall outside the category, mostly due to a lack of grammar. However, the conventional limitations have been obeyed in all texts.

Swales’ final contribution is dealing with naming genres and sub-genres. This is very relevant in the case of the six texts in question. As we have seen already, text A5 belongs to a category on its own in some terms and indeed, this text is named “operation manual”. Also, text A3 is a “list” while the remaining texts fall into the category of descriptions of some kind. Acknowledging these differences leads to the result that it is possible to distinguish between genres for the six texts.

Bhatia’s first comment on genre definition is dealing with the communicative purposes. As explained in section 5.5, the communicative purposes are different for the six texts in question since the purpose of text A5 is predominantly directive while the rest of the texts are informative and descriptive. Thus, with this definition in mind, text A5 can be sorted out from the others. In terms of genre convention and the exploitation of these, Swales and Bhatia more or less agree and in the case of the texts in question here, the significant conventions have been analysed already. Exploitation does not seem to be important in the texts since this aspect is mainly relevant for argumentative and directive texts. Thus, only text A5 would be of interest but the structure of this text in general does not point to any specific exploitation.

As a final comment to the theory, Bhatia’s own definition is taken into consideration. It could be said that each of the six texts of this survey is successful in achieving a specific communicative purpose, and that they do this using standard conventions. However, the purpose is not exactly the same for all texts and thus, they belong to different genres.

The more recent views which places genres even deeper within professional contexts than Swales and Bhatia have done in their original research could be applied to the genre-texts investigated here. However, while the texts show a number of features which places them within the technical genre, it is difficult to define exactly how deeply rooted they are. There is no doubt, though, that the writer of technical descriptions, whether an expert or not, should follow the conventions applied in these texts – otherwise he would most likely be unsuccessful in trying to achieve the communicative purpose. As we have seen already,
genres and their conventions cannot be separated. In this connection, the influence of institutional factors is less relevant.
6. Final Conclusions

This short chapter will sum up the findings from the previous parts of the text and provide an overview of the answers to the main question as well as the additional question raised at the beginning of this paper.

From the discussion in chapter 5 it is evident that the six texts belong to the same genre, namely the technical genre. However, enough differences are present between the six texts to divide them in the following way:

Text A1, A2, A4 and A6 belong to the genre of technical system descriptions. Based on an analysis of the texts’ lexico-grammar, text-patterns, structures, conventions, language functions and communicative purposes, it is concluded that these four texts have so many features in common that they can be assigned the same genre.

Text A3 is different in the sense that it consists of one long listing and contains only a few grammatical features. However, being a list which evidently belongs to the other texts in terms of content, it is most likely to be an appendix still belonging to the four texts mentioned above. Hence, the genre of text A3 is a technical list which is part of a technical description. Arguably, the text could be a sub-genre derived from the genre of technical system descriptions.

Text A5 is even more different according to the analysis of language functions and communicative purposes. The text is entitled “Operation Manual” and the conclusion is that it belongs to the genre of technical operation manuals. Thus, even though there are many similarities between this text and the others, especially in lexical terms, it is assigned a different genre. However, it may be reasonable to assume that operation manuals contribute to making up the genre of technical system descriptions; in this case, text A5 would represent a sub-genre.

As mentioned early on in this paper, all texts are taken from the same text material concerning a technical system. It is possible to consider that all texts belong to one single super-ordinate genre within the technical field. If the genre of technical operation manuals is considered a
sub-genre of technical system descriptions, the latter would qualify as this super-ordinate
genre. However, if not, it would require further analysis to find out more about this possible
super-ordinate genre – a task which is not part of the objective of this paper.

As to the second question put forward in the introduction, it is concluded that the analysis
model of Vijay K Bhatia is very useful. However, it has become evident through the chapters
4 and 5 that the model is not always applicable to the kind of texts investigated in this paper.
Not all steps and levels are significant. In some cases, the model provides no useful results
and in others, it provides only results which were already found at a previous step.

The obvious conclusion on this is that even though the model in general is useful and logical,
the results from using it will often depend upon the nature of the texts for analysis. In the case
of technical texts of the kind applied here, some specific parts of the model are not very
relevant; however, these parts may be very relevant for other texts.
Bibliography


Genre-texts used for analysis: see appendices 1-6
Appendix 1: Text A1

"Description of the Pallet Handling Crane"
Description of the Pallet Handling Crane

The purpose of the pallet handling crane is to remove pallets from the pile preparing machine, PPM, (A) and stack them on to the two roller conveyors (B and C). The functions of the crane are as follows:

1. The starting position of the crane is above one of the two roller conveyors.
2. The PPM receives a pallet with papers.
3. The pallet is placed in horizontal position. The pallet is pressed in the machine so that it cannot be removed.
4. (Y1)
5. (YA)
6. The PPM moves in longitudinal direction until the pallet arrives at an exact position (Y2).
7. The pressure plates of the claw (1) are moved from horizontal to vertical position by two actuators (2). These actuators have built-in sensors which register the two end positions of the pressure plates.
8. The claw is lowered to a stationary position and stops. This movement is powered by a frequency-adjusted engine (8).
9. The claw grabs the pallet by means of the two actuators. The actuators stop if they draw too much power, enabling inaccuracies to be discovered if the pallet is laterally offset (YB).
10. The PPM releases the pallet (Y3 or Y4).
11. The pallet handling crane blows compressed air on to the backside of the pallet to ensure that no paper is stuck.
12. The pallet is lifted by means of an engine (8) and is stopped by an inductive sensor.
13. The pallet’s position is changed from vertical to horizontal (5).
14. The PPM moves away, enabling the crane to move to one of the roller conveyors (YC).
15. The control unit of the pallet handling crane has already received a signal from the main control unit with information of which roller conveyor to move to. The crane moves the pallet to the roller conveyor in question by means of an engine (11).
16. This movement is stopped by an inductive sensor when the crane has reached a position above the first roller conveyor after the PPM (YD).
17. (Y5 and Y6)
18. The crane lowers the pallet on to the roller conveyor (engine 8). If no pallet is on the roller conveyor already, the pallet will be lowered until stopped by an inductive sensor. If a pallet is on the roller conveyor already, the crane will be moved to the photoelectric cell (4) (YE).
19. The claw opens until registered by the two actuator sensors and the pallet will fall the last 10 to 20 mm into position.
20. The claw moves to the uppermost position and awaits the next cycle.
21. If the pallet has been placed at a sufficient height, i.e. if 10 pallets are in the stack, the main control unit will ensure that the stack is removed (by the transfer cart).

The following signals are in use from the main control unit to the crane control unit:
Y1. The crane can move into position above the PPM.
Y2. A pallet is ready to be removed from the PPM.
Y3. The PPM has released the pallet. The pallet is to be placed on roller conveyor A.
Y4. The PPM has released the pallet. The pallet is to be placed on roller conveyor B.
Y5. Roller conveyor A is ready to receive pallet.
Y6. Roller conveyor B is ready to receive pallet.

The following signals are in use from the crane control unit to the main control unit:
Y.A. Ready to pick up a pallet.
Y.B. The claw has grabbed the pallet.
Y.C. The pallet is in the uppermost and horizontal position.
Y.D. The pallet has been picked up and moved to a position above a roller conveyor.
Y.E. The pallet has been placed on the roller conveyor.
Y.F. Roller conveyor A is full (stack of 10 pallets).
Y.G. Roller conveyor B is full (stack of 10 pallets).
Y.H. Error message from the pallet handling crane.
Y.I.
Y.J. The machine is in its initial position and ready.
Description of the pile preparing machine (PPM)

The purposes of the PPM are to receive pallets with piles from the transfer cart, to enable the removal of the pallet from the pile by the pallet handling crane, to handle the pile carefully, enabling it to go non-stop through a Bobst machine and, to deliver the pile to the transfer cart.

Neutral position:
- PPM at endstop 2.
- Tower vertical at endstop 6.
- Pallet plate at outermost position, endstop 4.
- Side tilt function for the entire machine (horizontal) at lowest position, endstop 8.
- Air valve at initial position, endstop 13.
- Side handle at outermost position, endstop 11.

Operation cycle:
1. (X1 or X2 (and possibly X3)).
2. The forks are elevated until the pressure sensitive switch reacts (a filter to eliminate any interference from the pressure sensitive switch is installed).
3. The cart returns to endstop 3.
4. The pallet plates open by timer.
5. The tower is tipped to horizontal position.
6. The pallet plates close until the pressure sensitive switch reacts.
7. The PPM returns to endstop 1 (XB).
8. (X4)
9. The PPM moves forward until the photoelectric cell registers the correct position beneath the crane (XI) (the photoelectric cell is situated at a post beyond the moveable parts of the PPM).
10. (X6)
11. The pallet plates open by timer (XC).
12. (X7)
13. The pallet plates close until the pressure sensitive switch reacts.
14. The PPM returns to endstop 1.
15. (X8)
16. For programme 1: Go to (29).
   For programme 2: Go to (17).
17. The pallet plates open by timer.
18. The side handle moves to the stack until physical contact is made.
19. The PPM returns to endstop 1.
20. Side tilt is activated for endstop 9.
21. The air valve moves a number of times simultaneously with the vibrator (the programme defines whether to apply the air valve and vibrator, and how many times).
22. If the control panel switch is on, the machine stops all functions but the air blower.
23. The operator enters the machine area and removes faulty sheets.
24. The operator leaves the machine area and pushes the reset button applying to the stop function.
25. Air valve and vibrator finish their cycle.
26. Side tilt moves to the bottom position at endstop 8.
27. The side handle returns to endstop 11.
28. The pallet plates close until the pressure sensitive switch reacts.
29. The PPM moves to endstop 3.
30. If the pile is not to be turned: Go to (47).
   If the pile is to be turned: Go to (31).
31. The machine stops all functions.
32. The operator enters the machine area and manually turns the machine.
33. The operator leaves the machine area and activates the “continue turning” function.
34. The PPM tips the tower into vertical position.
35. The PPM moves to endstop 2.
36. The pallet plates open until endstop 4 is activated (XG).
37. The pile is transported from the intermediary transportation unit to the transfer cart (X10).
38. The pallet plates close by timer.
39. The PPM returns to endstop 3.
40. The PPM tips the tower into horizontal position.
41. The machine stops all functions.
42. The operator enters the machine area and manually turns the tower back into neutral position.
43. The operator leaves the machine area and activates the “finish turning” function.
44. The PPM tips the tower into vertical position. Go to (46).
45. The PPM moves to endstop 2.
46. The pallet plates open until endstop 4 is activated (XJ)
47. The PPM tips the tower into vertical position.
48. The PPM moves to endstop 2.
49. The pallet plates open until endstop 4 is activated (XG).
50. The pile is moved from the intermediary transportation unit to the transfer cart (X10)
XJ.
51. (XJ)

The following signals are in use from the main control unit to the PPM:
X1. The pallet runs programme 1 at the PPM.
X2. The pallet runs programme 2 at the PPM.
X3. The pile is turned.
X4. The pallet handling crane is in position at the PPM
X5.
X6. The crane claw has grabbed the pallet.
X7. The crane has lifted the pallet from the PPM.
X8. The pallet handling crane is outside the operating area of the PPM.
X9.
X10. The pile has been transported from the intermediary transportation unit to the transfer cart.

The following signals are in use from the PPM to the main control unit:
XA. Gate open.
XB. The pallet handling crane can move to the pick up position at the PPM.
XC. Push “release pallet” to enable the pallet to be removed from the pallet handling crane.
XD.
XE.
XF.
XG. The pile has been placed on the intermediary transportation unit.
XH. Error message from the PPM.
XI. The PPM is in position beneath the crane.
XJ. The PPM is in neutral position.
Appendix 3: Text A3

"List of Spare Parts"
<table>
<thead>
<tr>
<th>Pos.</th>
<th>Part</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Short conveyor</strong></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1.1 kW motor</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1.5 kW motor</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1.1 kW driving shaft</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Axle</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Shaft bearing</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Gear-wheels</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Apron feeder</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td><strong>Long Conveyor</strong></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>2.2 kW motor</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1.1 kW driving shaft</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Axle</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Shaft bearing</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Gear-wheels</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Apron feeder</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td><strong>Offset Unit</strong></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Wheels for offset unit</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Actuator</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td><strong>Bobst Transporter</strong></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>1.5 kW motor</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Driving shaft</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Axle</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Bearing</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Gear-wheel bearing</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Gear-wheels</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Chain</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Chain links</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Slide with non-friction surface</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>37</td>
<td><strong>PPM transporter</strong></td>
<td></td>
</tr>
<tr>
<td>38</td>
<td>1.5 kW motor</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Driving shaft</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Axle</td>
<td></td>
</tr>
<tr>
<td>41</td>
<td>Bearing</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>------------------</td>
<td></td>
</tr>
<tr>
<td>42</td>
<td>Gear-wheel bearing</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Chain</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Chain links</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>47</td>
<td><strong>Thando</strong></td>
<td></td>
</tr>
<tr>
<td>48</td>
<td>Tower</td>
<td></td>
</tr>
<tr>
<td>49</td>
<td>Paper guide</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Cart/Cabinet</td>
<td></td>
</tr>
<tr>
<td>51</td>
<td>Bottom</td>
<td></td>
</tr>
<tr>
<td>52</td>
<td>Turning unit</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Forks</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Control panel</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>Vibration unit</td>
<td></td>
</tr>
<tr>
<td>56</td>
<td>Mounting frame, bottom</td>
<td></td>
</tr>
<tr>
<td>57</td>
<td>Tilting towers</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Air control</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>Air land</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>Air supply</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>Air nozzles</td>
<td>90601027-28-29</td>
</tr>
<tr>
<td>62</td>
<td>Spindle</td>
<td></td>
</tr>
<tr>
<td>63</td>
<td>Main switch</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>Hyd. cylinder, side tilt</td>
<td>HM85-F-D-40/20x250-F-SP</td>
</tr>
<tr>
<td>65</td>
<td>Hyd. cylinder, raise</td>
<td>HM85-BFL-D-63/40x500-SP</td>
</tr>
<tr>
<td>66</td>
<td>Hyd. cylinder, tip</td>
<td>HM85-S-D-80/40x500-GV-SP</td>
</tr>
<tr>
<td>67</td>
<td>Hyd. cylinder, forwards/backwards</td>
<td>HM81-S-D-50/25x1080-SP</td>
</tr>
<tr>
<td>68</td>
<td>Hyd. cylinder, turn</td>
<td>HM85-FFL-D-40/25x600-S</td>
</tr>
<tr>
<td>69</td>
<td>Hyd. cylinder, paper guide</td>
<td>HM85-S-D-40/25x400-S-Regal</td>
</tr>
<tr>
<td>70</td>
<td>Hydraulic pump</td>
<td>2.2 kw-5.8 L/min</td>
</tr>
<tr>
<td>71</td>
<td>Solenoid valves</td>
<td>CETOP3 DHI-0711-X24DC</td>
</tr>
<tr>
<td>72</td>
<td>Pressure sensitive switch</td>
<td>XMAP-320</td>
</tr>
<tr>
<td>73</td>
<td>Oil filter</td>
<td>Spin on 10MY</td>
</tr>
<tr>
<td>74</td>
<td>Tip cylinder slide bearing</td>
<td>SKF sliding bush PCM 303440 B</td>
</tr>
<tr>
<td>75</td>
<td>Tower pedestal bearing</td>
<td>SKF SY 50 TF</td>
</tr>
<tr>
<td>76</td>
<td>Rotating ring</td>
<td>Rotating ring XU12 0222</td>
</tr>
<tr>
<td>77</td>
<td>Tower roller bearing</td>
<td>SKF 6307-2Z</td>
</tr>
<tr>
<td>78</td>
<td>Chain roller bearing</td>
<td>SKF 6301-2Z</td>
</tr>
<tr>
<td>79</td>
<td>Spindle flange bearing</td>
<td>SKF bearing YAR 203-2F</td>
</tr>
<tr>
<td>80</td>
<td>Air nozzle bearing</td>
<td>SKF 61816-2RZ</td>
</tr>
<tr>
<td>81</td>
<td>Bush for hinge/bottom</td>
<td>Johnson SMS 779 20/26×25</td>
</tr>
<tr>
<td>82</td>
<td>Air tube, ø 70</td>
<td>PEM PUR SL 351 Ø70</td>
</tr>
<tr>
<td>83</td>
<td>Air filter</td>
<td>Filter cartridge cat. u 00-510-0205</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>84</td>
<td>Manometer, ø 63</td>
<td>1/4&quot; RG 0-250 mbar</td>
</tr>
<tr>
<td>85</td>
<td>Air scoop gasket</td>
<td>Thando</td>
</tr>
<tr>
<td>86</td>
<td>Bottom sliding blocks</td>
<td>PEHD 500 Thando</td>
</tr>
<tr>
<td>87</td>
<td>Paper guide motor</td>
<td>CSM M56 4A 0.06kW 1400 rpm</td>
</tr>
<tr>
<td>88</td>
<td>Vibration motor</td>
<td>HV2/4-6 Würges</td>
</tr>
<tr>
<td>89</td>
<td>Air land motor</td>
<td>AGM 56 4A 0.09kW 1400 rpm</td>
</tr>
<tr>
<td>90</td>
<td>Blower</td>
<td>Rietschle SKG334-2 5.5 kW</td>
</tr>
<tr>
<td>91</td>
<td>Endstop Telemecanique</td>
<td>XCM-F110 piston</td>
</tr>
<tr>
<td>92</td>
<td>Endstop Telemecanique</td>
<td>XCK-M115</td>
</tr>
<tr>
<td>93</td>
<td>Chains for elevation function</td>
<td>Elite Bl 546</td>
</tr>
<tr>
<td>94</td>
<td>Chain cotter bolts</td>
<td>Elite 5/8 BL546 L=34MM</td>
</tr>
<tr>
<td>95</td>
<td>Air nozzle guide bar</td>
<td>Dua-L-Vee unhardened bar T2</td>
</tr>
<tr>
<td>96</td>
<td>Guide bar bearing</td>
<td>Dua-L-Vee sealed bearing W2X</td>
</tr>
<tr>
<td>97</td>
<td>Guide bar bush</td>
<td>Dua-L-Vee eccentric BMX2</td>
</tr>
<tr>
<td>98</td>
<td>Toothed belt disk</td>
<td>27 T 5 - 44/0 (17H7 +2U)</td>
</tr>
<tr>
<td>99</td>
<td>Toothed belt disk</td>
<td>27 T5-25/2 + 1U</td>
</tr>
<tr>
<td>100</td>
<td>Toothed belt</td>
<td>16 T5-340</td>
</tr>
<tr>
<td>101</td>
<td></td>
<td></td>
</tr>
<tr>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>103</td>
<td></td>
<td>AVN</td>
</tr>
<tr>
<td>104</td>
<td>PANEL TFT COLOUR 10.4</td>
<td>PMU730TTSAC</td>
</tr>
<tr>
<td>105</td>
<td>R-NET Option Card PMU-730</td>
<td>PMO730RNET</td>
</tr>
<tr>
<td>106</td>
<td>PLC OUTPUT MODULE PNP 32 points</td>
<td>G4QTR4B</td>
</tr>
<tr>
<td>107</td>
<td>PLC CPU MODULE</td>
<td>GM4CPUC</td>
</tr>
<tr>
<td>108</td>
<td>PLC POWER SUPPLY AC 220V INPUT</td>
<td>GM4PA2A</td>
</tr>
<tr>
<td>109</td>
<td>PLC INPUT MODULE 16 POINT</td>
<td>G4ID22A</td>
</tr>
<tr>
<td>110</td>
<td>PLC COMPUTER COM. RS232C/485</td>
<td>G4LCUEA</td>
</tr>
<tr>
<td>111</td>
<td>PLC Remote I/O 16IN/16Out Rnet</td>
<td>GRLDT4A</td>
</tr>
<tr>
<td>112</td>
<td>PLC Remote I/O 32IN Rnet</td>
<td>GRLD24A</td>
</tr>
<tr>
<td>113</td>
<td>PLC Remote I/O 32Out Rnet</td>
<td>GRLTR4A</td>
</tr>
<tr>
<td>114</td>
<td>PLC ANALOG INPUT 4 CHANNELS</td>
<td>G4FAD2A</td>
</tr>
<tr>
<td>115</td>
<td>POWER SUPPLY 10A - IMO</td>
<td>SNT240</td>
</tr>
<tr>
<td>116</td>
<td>FUSE 1P+N IMO 10A</td>
<td>C6D1N10</td>
</tr>
<tr>
<td>117</td>
<td>FUSE 1P+N IMO 16A</td>
<td>C6C1N16</td>
</tr>
<tr>
<td>118</td>
<td>FUSE 1P+N IMO 25A</td>
<td>C6D1N25</td>
</tr>
<tr>
<td>119</td>
<td>FUSE 1P+N IMO 6A</td>
<td>C6C1N06</td>
</tr>
<tr>
<td>120</td>
<td>FUSE 1P+N IMO 16A</td>
<td>C6D1N16</td>
</tr>
<tr>
<td>121</td>
<td>FUSE 1P IMO 10A</td>
<td>C6C1010</td>
</tr>
<tr>
<td>122</td>
<td>FUSE 3P+N IMO 32A</td>
<td>C6D3N32</td>
</tr>
<tr>
<td>123</td>
<td>CONTACTOR 3POLE 15kW 230 VAC</td>
<td>MC32S00230</td>
</tr>
<tr>
<td>124</td>
<td>CONTACTOR 3POLE 37kW 230AC</td>
<td>MC74S00230</td>
</tr>
<tr>
<td>125</td>
<td>INVERTER 0.75 kW 1 PHASE 230 VAC</td>
<td>SV008IC51F</td>
</tr>
<tr>
<td>126</td>
<td>INVERTER 1.50 kW 1 PHASE 230 VAC</td>
<td>SV015IC51F</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Code</td>
</tr>
<tr>
<td>---</td>
<td>-----------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>127</td>
<td>INVERTER 2.2 kW 1 PHASE 230 VAC</td>
<td>SV022IC51F</td>
</tr>
<tr>
<td>128</td>
<td>S3000-M 5.5m Safety scanner</td>
<td>1019600</td>
</tr>
<tr>
<td>129</td>
<td>Systemplug Sick</td>
<td>2027177</td>
</tr>
<tr>
<td>130</td>
<td>UE 10-OS2 safety relay</td>
<td>6024917</td>
</tr>
<tr>
<td>131</td>
<td>ENCODER DGS60-C4A01024</td>
<td>1032089</td>
</tr>
<tr>
<td>132</td>
<td>Wheel for encoder BEF-MR 010020</td>
<td>5312988</td>
</tr>
<tr>
<td>133</td>
<td>PROXIMITY SWITCH SICK M18 PNP</td>
<td>7900097</td>
</tr>
<tr>
<td>134</td>
<td>OPTICAL SWITCH SICK REFLEKS PNP</td>
<td>6028606</td>
</tr>
<tr>
<td>135</td>
<td>OPTICAL SWITCH SICK DIFUS PNP</td>
<td>6012649</td>
</tr>
<tr>
<td>136</td>
<td>ULTRA SONIC UM30-13113</td>
<td>6025667</td>
</tr>
<tr>
<td>137</td>
<td>LASER DISTANCE MEASUREMENT</td>
<td>1026517</td>
</tr>
<tr>
<td>138</td>
<td>Plug SICK M12 10 METER</td>
<td>6010543</td>
</tr>
<tr>
<td>139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>141</td>
<td></td>
<td></td>
</tr>
<tr>
<td>142</td>
<td></td>
<td></td>
</tr>
<tr>
<td>143</td>
<td></td>
<td></td>
</tr>
<tr>
<td>144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>146</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 4: Text A4

"Functional Description for Phase 2 Delivery Section"
Functional Description for Phase 2 Delivery Section.

The purpose of the delivery section is to optimise the delivery flow by ensuring that the Bobst machine can run continuously without stopping for changing pallets in the delivery.

The delivery section contains the following components:
1. Receiving conveyor under the Bobst hoist
2. Platform plate for the hoist
3. Storage conveyor for 3 pallets
4. Conveyor for removing pallets
5. Pallet magazine with space for 6 pallets
6. Pallet magazine conveyor

The flow through the system is as follows:
- The system is empty on start up.
- A stack with 6 pallets is put into the pallet magazine
- The stack with 6 pallets is moved from position 5 to position 6
- The forks on the pallet magazine retract the stack of pallets, thereby positioning the stack on the conveyor (pos. 6). The positioning is secured by a fixed bar placed on the platform plate on the hoist.
- The forks of the pallet magazine grab the 5 pallets on top of the stack, lift them up and retract them into the pallet magazine (pos. 5).
- At pos. 1 the hoist is lowered so that the platform plate (pos. 2) is lower than the top of the conveyor chains. On the platform plate, the pallet is retracted to a bar which ensures that the pallet is aligned with the Bobst machine.
- The conveyor (pos. 6) reverses the pallet and transfers it to pos. 1.
- The conveyor (pos. 1) reverses up against a fixed bar to ensure that the pallet is aligned with the Bobst machine.
- The hoist platform lifts the pallet up into the receiving position.
- The Bobst fills the pallet with sheets.
- When the pallet is full, the curtain is drawn out and the sheets from the Bobst are placed on the curtain.
- The pallet is lowered until the platform height is lower than the top of the chains on the receiving conveyor (pos. 2).
- The pallet is transported to the pallet magazine conveyor (pos. 6) and afterwards to the storage conveyor (pos. 3), where there is enough space for 3 pallets.
- The pallet magazine moves the stack with 5 empty pallets onto the pallet magazine conveyor.
- The pallet magazine removes the 4 top pallets.
- The last pallet is transported onto the receiving conveyor (pos. 1)
- The hoist platform is elevated up to the curtain, the curtain is retracted and the stack of sheets falls down onto the pallet.
- The full pallet on the storage conveyor (pos. 3) is transported to the pallet removing conveyor (pos. 4).
Minimum Requirements for the Electrical System

The following minimum requirements apply to the electrical system:

A. The control system consists of 1 central power panel with a Siemens S7 PLC or a power panel that is linked to the top level control system. If the system is a separate system, there must be a modem built into the system.
B. All drives must be reversible.
C. There must be at least 3 E-stop buttons.
D. If the control system for the delivery section is a separate system, it has to be equipped with a display to show system and error status.
E. It must be possible to run all drives from the panel.
F. All censor statuses must be visible from the panel.
G. A visible indication that the pallet magazine is in neutral position must be present.
H. There must be a yellow blinking lamp on top of the panel to indicate if there is an error.
I. The pallet magazine must be operating automatically. If needed, the operator must have the possibility to push a button, thereby delivering a pallet to the conveyor in front of the pallet magazine.
J. The E-stop circuit must be implemented in the upper control systems.
K. All cable connections to the power panel must be with sockets and plugs.
L. The system must contain all necessary safety equipment.

The 5 elements are equipped with the following components and switches:

<table>
<thead>
<tr>
<th>Machine part</th>
<th>Censor and switches</th>
<th>Motors</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving conveyor under the Bobst hoist</td>
<td>1 censor for detecting the mass of pallet</td>
<td>1,5 KW speed 0,15 m/s</td>
<td>FQ required</td>
</tr>
<tr>
<td>Platform plate for the hoist</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Storage conveyor for 3 pallets</td>
<td>2 SICK WL100 photo censor</td>
<td>2,2 or 3,0 KW motor</td>
<td>FQ required</td>
</tr>
<tr>
<td>Conveyor for removing pallets</td>
<td>2 SICK WL100 photo censor 1 switch for removing a pallet</td>
<td>1,5 KW motor</td>
<td>FQ required</td>
</tr>
<tr>
<td>Pallet magazine with space for 6 pallets</td>
<td>1 SICK WL100 photo censor 6 inductive censors 2 switches on doors to pallet magazine</td>
<td>1,0 KW motor 24V actuator</td>
<td>FQ required Control card for actuator</td>
</tr>
</tbody>
</table>
Appendix 5: Text A5

"Operation Manual for PPM and PHC"
Operation Manual for PPM and PHC

Overview of the PPM and PHC area

The purpose of the PPM and PHC area is to remove the pallets from the piles automatically and to prepare the piles for a smooth operation in the Bobst machines.

The area contains four main components:

A Pile Preparing Machine
B Roller conveyor for empty pallets from Bobst 130
C Roller conveyor for empty pallets from Bobst 142
D Pallet Handling Crane

Screens for the PPM
There are 9 screens in the operation panel. The screens are simple touch screens.

The main screen shown on the display after start-up of the PPM is the entry point for the other screens.

If the touch screen has not been used for approximately three minutes, a password protection function is activated. To deactivate this function, press the PASSWORD button on the main panel. The password screen will appear.

Click on the password box to access the “enter password” area.
Type in the password - 6433 - in the bottom right-hand corner and press “enter”.
Press the << button in the upper left-hand corner to return to the password screen.
Press the << button again to return to the main screen.
Now the different screens are accessible. If the INITIAL POS is marked in the upper left-hand corner of the main screen, automatic operation may be initiated.
Automatic operation of PPM
The initial position of the PPM is the starting point for the automatic operation. In the section “Services Screens for PPM” there is a description of how the position is set.
To start the automatic operation, press the button RESET and afterwards press the button AUT. When AUT is activated, the top of the AUT button will be marked with a black line. On the operation panel there is a round white light push button marked START/STOP. Press this button to start the PPM.
To alter the PPM’s program 2, use one of the following screens: ADJ. FUNC. or ADJ. TIMES. These screens are shown below:

To alter one of the settings, press the box and type in a different value. The PPM will then change the operation to accommodate the alteration.

Manual operation of PPM
When the password has been entered, the PPM can be operated manually. To activate manual operation, press the button MAN. A black line on top of the button will light up. Then, press the button MAN FUNC. The manual function screen will now appear.

Caution: pay full attention when the PPM is operated manually. During manual operation the PPM may be moved around freely in the surroundings.

The screen contains 16 buttons - they are as follows:
- **TILT VERTICAL** Tilt pile into vertical position
- **TILT HORIZON.** Tilt pile into horizontal position
- **SIDE TILT UP** Tilt pile to the side (only when wagon is in initial position)
- **SIDE TILT DOWN** Tilt pile to horizontal (only when wagon is in initial position)
- **FORKS OPEN** Open forks/plates which the pile is standing on
- **FORKS CLOSE** Close forks/plates which the pile is standing on
- **ALIGN. BACKW.** Move side bar away from the pile
- **ALIGN. FORW.** Move side bar towards the pile
- **VIBRATOR** Start vibrators
- **BLOWER 1** Start blower 1
- **BLOWER 2** Start blower 2
- **HYD. PUMP** Start hydraulic pump
- **SPINDEL BACKW.** Move air spindle backwards
- **SPINDEL FORW.** Move air spindle forwards
- **WAGON BACKW.** Move the complete upper carriage backwards
- **WAGON FORW.** Move the complete upper carriage forwards

**TILT VERTICAL / TILT HORIZONTAL**
During manual operation tilting the machine from vertical to horizontal is only allowed when the entire under carriage is moved into the position shown on the frame of the PPM. If the top part of the PPM is tilted outside of this area, the PPM or the machinery in the surroundings may be damaged.
Initial position of PPM
The initial position for the PPM is with the gates in the fencing closed, the wagon in the front position, the top of the PPM tilted in vertical position, the side tilt down, the forks fully open, the aligning bar backward, the spindle in backward position, the tower locked, and the tower in 0 degrees.
If there is any doubt if the PPM is in initial position, press the button INITIAL POS. in the upper right-hand corner of the manual function screen which is shown below:

Services screens for PPM
For maintenance purposes there are three screens. The first screen is COUNTER. This screen shows the number of piles that have been processed.

The second screen is STATUS AUX. This screen shows the communication between the PPM and the central controlling system. The status of the communication is identical to the one on the central controlling system.

Only a qualified operator with high knowledge of the system functions may replace the central control system and manually set a signal to the PPM. To set the signal the following screen is used:

When the signal is set, the PPM will activate an automatic operation. Caution: if improperly used, this operation may damage the PPM machine or the surrounding machines.
The signals are as follows:

XA Gate open
XB Crane in position over the PPM for collecting the pallet
XC Pallet ready for collection from the PPM. The pressure on the pile is released
XD Not in use
XE Not in use
XF Not in use
XG Pile delivered on conveyor in front of the PPM
XH Error on the PPM
XI Pallet in position under the crane
XJ PPM ready to receive a pallet with a pile

Visual signals from PHC
The PHC has no touch screen for information on the situation or status of the crane. The power panel for the crane has four light signals. These signals provide the information needed for normal operation. The lights are marked as follows:

AUTOMATIC OPERATION / RESET
ALARM
EMERGENCY STOP
TERMINAL FAILURE

There is a switch button for running manually or automatically. The last button is a push button for resetting an alarm.

When a fault appears, the red ALARM will flash. The number of flashes will specify which fault has occurred. Each sequence of flashes will be followed by a short period of no light in the ALARM bulb. The number of flashes means as follows:

1. Thermo failure actuators, rotation motors, hoist
2. Thermo failure trolley
3. Failure from frequency inverter trolley motor
4. Not used
5. Klixon failure trolley motors
6. Failure control circuit hoist 1
7. Failure control circuit hoist 2
8. Failure on switches for top stop, before top, bottom stop PPM, and bottom stop line
9. Signal failure. Height limit switch contemporary with slack rope
10. Running time on rotation too long, or one motor is running without the other
11. Running time on actuators too long, or one motor is running without the other
12. Running time on hoist too long

Running time on trolley too long

Manual operation of PHC
To operate the crane in manual mode, switch the button from AUT to MAN. By setting the crane in MAN mode, the crane can be operated with the yellow hand control. There are eight buttons which control the four directions of motion for crane operation.

When the crane is operated in manual mode, make sure that the crane does not damage itself or any other machines in the surroundings.

Initial position of PHC
The initial position of the crane is as follows:
Above one of the roller conveyors for empty pallets, crane in upper position, pallet bars rotated in horizontal position and pallet bars open. When the crane is in the initial position, the green light will start flashing. When you push the green button, it will reset the cycle which the crane is running in automatic mode. This is important if the crane is stopped during a cycle because it will continue from the point of the cycle where it was interrupted.

Automatic operation of PHC
When the crane is in the initial position, automatic mode may be switched on. When the crane is operating in automatic mode and is not in the initial position, the green light will be on. If any problems should occur during an automatic cycle, the crane must be switched from AUT to MAN to enable correction the positioning of the crane. After this change in positioning the crane may be switched from MAN to AUT and the automatic cycle will continue from the point where it was interrupted.
Appendix 6: Text A6

"Functional Description"
Introduction

The functional description does not provide a detailed description of the entire system, but emphasises the superior principles employed when designing the programme. This document describes the function for the full automatic non-stop logistic system, feeder sections for 2 Bobst Die cutting machines at Kappa Corby, attaching importance to the control and the part of the system that concerns data.

The functional description contains 5 main sections;

1. Introduction
2. Functional description
3. Operating screens/instructions
4. Adjustment and maintenance
5. Fault / fault finding / alarms

The section concerning operating instructions gives a description for the person operating the system for everyday use. Further sections apply to “super users” and maintenance staff.

This document does not provide a detailed description of the entire system, but emphasises the superior principles employed when building the new system; how the system works, and which functions can be found in the supplied system. Should you require any further information about details, please confer with the PLC programme.

Yet, the functional description affords the fundamental qualifications to operate the system and carry out faultfinding procedures, and it gives examples of the most frequent fault cases.

Unless nothing else is stated, all position numbers refer to the electrical drawings and markings of the system.

References

Drawings of physical layout (INFRAMATIC drawing No. 2004B1010, “Kappa System Layout”)

The functional description does not cover mechanical components, since these are described in the documentation from INFRAMATIC.

Description of equipment

PPM          Pile-preparing machines.
PHR          Pallet handling robot.
Pallets
The pallets the system can handle have to have a size in-between the following maximum and minimum sizes. Width min 650 mm and max 1420 mm, length min. 500 mm and max. 1020 mm. The pallets have to be of a quality and shape to be taken automatically from the Pile Turner machine. The plastic pallets in the dispatch area have a size of 800*1200 or 1000*1200. The size has to be defined before production of the pallet magazines. Minimum height of pile 700 mm and maximum 1800 mm including wooden pallet. No pallet will have a weight higher then 1500 kg.

Electrical numbering:
The entire system has been marked with cable numbers and signs on motors, valves and sensors etc. The numbering has been based on the following principles: SZZTNNFF.

S: Denotes system number: 1,2,3.

ZZ: Denotes section number.

T: Denotes component type.
   A = Connection (control panel, manual desk, connection box, rack, amplifier)
   B = Converter (photocells, inductive sensor)
   E = Various (refrigerating, heating element)
   F = Protection equipment (fuse, thermal protection)
   H = Signal device (lamp, siren, display)
   K = Contactor, relay (emergency stop relay, contractor)
   M = Motor
   Q = Main switch, selector switch (main switch, hand-controlled motor cover)
   R = Resistant
   S = Switch, selector switch, (turning, push button, limit-switch, switch)
   T = Transformer (power supply, transformer)
   U = Converter (frequency converter, soft starter)
   V = Semiconductor (diode)
   W = Wire, cable
   X = Terminal, plug, base (terminal block, plug box)
   Y = Electrical controlled mechanical unit (valve, break, clutch)

NN: Denotes the place number in the section.

FF: Denotes an additional function. May consist of one or several letters in combination.
   A = Help function
   B = Warning
C = Counting (encoder)
D = Information (lamp pushbutton ”send”, tumble wheel)
E = Occupied
F = Security (emergency stop)
G = Recognition (bar code scanner)
H = Horizontal movement (vertical movement of motor, roller and chain conveyor etc.)
J = Hands-on system (pushbuttons, turning buttons)
K = Queue management
L = Machine safety (end stop, chain control)
M = Process stop (light bar)
N = Measuring / control (correction control)
P = Position (machine in position)
Q = Available
R = Reset position (down, reverse, return, receiver)
S = Set position (up, forward, sender)
U = Turning / horizontal side movement (turntable, shuttle car)
V = Speed (high / low)
W = Vertical movement (vertical movement hoist, lift etc.)
X = Signal exchange
Y = Available
Z = Stop (local stop function, cycle stop)

All components within the same unit also have, as far as possible, the same control number, zone number and unit number. For instance a motor is named 101M02H, repair switch 101Q02HF, contactor 101K02H, and motor guard 101Q02H.
Emergency stop/emergency stop circuit/Nødstop/nødstopskredse/Nødstop/nødstopskredse:

The conveyor system has one emergency stop circuit, and the emergency stop module is placed in the main power panel. This emergency stop module monitors all emergency stops on the system. 3 lamps are placed in the emergency stop module. One lamp will illuminate when there is voltage on the system and the two others will illuminate when the emergency stop circuit can be reset.

When the relay is interrupted and the main power is cut off to all the motors in the system will be stopped, via the main contractors, when an emergency stop has been activated. Hereby everything is effectively stopped. It is not possible to reset the relay if an emergency stop pushbutton is not functioning.

Follow the list below when resetting the system:

1. Locate the activated emergency stops
2. Deactivate the specific emergency stop pushbutton
3. Press “reset” on the main panel
4. Press “start” on the monitor screens.
Principles for transferring pallet/Piles:

The type of conveyor can either be a roller or a chain conveyor, but common for them both is that they have a sensor and a motor at each pallet position. Both motors are running during pallet transport from pos. a to pos. b, and they both stop when the pallet reaches pos. b. The pallet data follows the physical placing of the pallet. The same basic principle applies when 2 or more pallets are being transported at the same time. In this case the data sets are simply transferred simultaneously.

For transferring a pallet on the system several conditions must be fulfilled before it is started and again before it stops. These conditions depend on the pallet data and type of conveyor. There are 3 basic conditions before a pallet is started and 2 conditions before it stops.

When a pallet starts by running from pos. a to b the following conditions must be met:

1. There has to be available pallet data on pos. A.
2. There must not be any data on position B.
3. The sensor on position B must not be deactivated.

Additionally, there are a number of other conditions depending on the type of the next conveyor - if it is a lift, a hoist or a transfer car.

Furthermore there are 2 main conditions, which must be fulfilled before the pallet moves physically:

1. The section, in which position A is located, has to be operating.
2. The section, in which position B is located, has to be in automatic mode

When the pallet has to stop again there are 2 conditions to be fulfilled:

1. The section, in which pos. A and pos. B is located, has to be operating.
2. The sensor on pos. B has to be active.

When the pallet reaches its new position and the above requirements have been met, the data is transferred from pos. A to pos. B.
Functional description

The system in general
AVN ELEKTRONIK A-S is to supply a conveying system for in feeding pallet with pile to the pile-preparing machine and after remove the pallet, send then to the two Bobst Die cutting machines on demand. The system is designed to minimize the need for human interaction. 

The system is electrically divided in 6 zones:

<table>
<thead>
<tr>
<th>Zone</th>
<th>Description</th>
<th>Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Main in feed and out feed</td>
<td>Pos.’s 1, 2 and 10</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Pile-preparing machines</td>
<td>Pos.’s 4, 5, 9 and 11</td>
</tr>
<tr>
<td>Zone 3</td>
<td>In feed</td>
<td>Pos.’s 12-15</td>
</tr>
<tr>
<td>Zone 4</td>
<td>Conveyors to Bobst 142</td>
<td>Pos.’s 16-20</td>
</tr>
<tr>
<td>Zone 5</td>
<td>Conveyors to Bobst 130</td>
<td>Pos.’s 26-31</td>
</tr>
<tr>
<td>Zone 8</td>
<td>Transfer cart</td>
<td>Pos.’s 3</td>
</tr>
</tbody>
</table>

All zones are centrally controlled through a LG GM4 PLC placed in the main panel with distributed IO in sub-panels.
Functional description Section 1 (Main In feed)

Pos. 1 (Pallet in feed from truck)
The truck driver decides on which in feed roller conveyors to put the pallets and gives the pallet information to the control system. The control system needs the following information:

- Job number xxxxx (5 digits)
- Number of pallets in Job xxx (3 digits)
- Number of pallets to load on this position xxx (3 digits)
- Program for PPM x (Program 1 or Program 2)
- Turn pile in PPM x (Yes or No)

The control system shows the operator the loading conveyor that the pallets are to be placed on. The in feed roller conveyors have room for 1 new pallet each. The truck driver places the pallet on the conveyor, so photo sensor is on, and pushes the “Start” bottom. The control system transports the pallet to the next position on the conveyor, if the position is free and ready. This will continue to the end of the Conveyor. The loading zone conveyors pos. 1 and 2 can be filled with max three pallets.

Pos. 2 (Pallet in feed from truck)
This position will be handled like position 1. See 2.2.1.

Pos. 10 (Out feed)
The empty pallets from section 2 are transported from pos.9 and 11 with the transfer cart to pos.10. If a pallet with a pile is rejected by the operating personnel, it will also be transported to the roller conveyor pos. 10. When a pallet is placed on pos.10.1 it will be moved to the end of the conveyor if it is free. At the end of the conveyor the truck driver has to remove the empty or the rejected pallet. After the truck driver has removed the pallet, the next will be moved in position to the truck driver.
Functional description Section 2 (PPM / PHR)

Pos. 4 (Pile-preparing machines)
The actual function of the pile-preparing machine is out of this scoop, as it is delivered from another supplier.

Pos. 5 (Pallet handling robot)
The actual function of the pallet handing robot is out of this scoop, as it is delivered from another supplier.
Functional description Section 3 (In feed)

Pos. 12 (Pallet in feed from truck)
This position will be handled like position 1. See 2.2.1, except the position can be filled with max. four pallets.

Pos. 13 (Pallet in feed from truck)
This position will be handled like position 1. See 2.2.1, except the position can be filled with max. four pallets.

Pos. 14 (Pallet in feed from truck)
This position will be handled like position 1. See 2.2.1.

Pos. 15 (Pallet in feed from truck)
This position will be handled like position 1. See 2.2.1, except the position can be filled with max two pallets.
Functional description Section 4 (Bobst 142)

Pos. 16 (Chain conveyor)
If the cart has a pile for the Bobst 142, it will stop in front of the chain conveyor pos. 16. When pos. 16 is empty and ready, the chain conveyor pos. 16 and the chain conveyor on the cart will start up. The pile will then be transferred from the cart to the chain conveyor pos. 16.1. If there is a pile on pos.16.1, it will be transported to pos. 16.2.

Pos. 17 & 18 (Chain conveyor)
If pos. 18 is empty and ready, a pile is transported from pos.16.1 or 16.2 to pos. 18. On pos.18 two ultrasound detectors measure the distance to each side of the pile (the height of the detectors is 400mm). If the pile is not correctly offset the conveyor pos. 18 will move to the right or left, ensuring the correct offsetting of a pile. The operator has to give the offset of the first pile manual in order to get it to move from pos. 18 (Bobst operators set the parameters for the offset move).

Pos. 19 (Chain conveyor on bridge)
When the Bobst die cutters are ready to receive a pile, the bridge at conveyor pos. 19 is raised and the pile moves directly onto conveyor pos. 20. The system is equipped with a detector that controls the bridge ensuring it is raised before the pile moves.

Pos. 20 (Bobst 142)
The chain conveyor pos. 20 is installed on the elevation table of the Bobst. (A ready signal will be given to the Bobst.) The design of the conveyor ensures that the fingers from the Bobst die cutters can go between the chains and lift the remaining part of the pile ensuring continuous production of the machine.
Functional description Section 5 (Bobst 130)

Pos. 26 (Chain conveyor)
If the cart has a pile for the Bobst 130, it will stop in front of chain conveyor pos. 26. When pos. 26 is empty and ready, the chain conveyor pos. 26 and the chain conveyor on the cart will start up. The pile will then be transferred from the cart to the chain conveyor pos. 26.1. If there is a pile on pos.26.1, it will be transported to pos. 26.2.

Pos. 27 (Chain conveyor)
Transport is started if pos. 27 is empty, ready and two piles on pos.26, or if pos.29 are empty.?????

Pos. 28 & 29 (Chain conveyor)
If pos. 29 is empty and ready, a pile is transported from pos.27.1 or 27.2 to pos. 29. On pos.18 two ultrasound detectors measure the distance to each side of the pile (height of the detectors is 400mm). If the pile is not correctly offset the conveyor pos. 29 will move to the right or left, ensuring the correct offsetting of a pile. The operator has to give the offset of the first pile manual in order to get it to move from pos. 29 (Bobst operators set the parameters for the offset move).

Pos. 30 (Chain conveyor on bridge)
When the Bobst die cutters are ready to receive a pile, the bridge at conveyor pos. 30 is raised and the pile moves directly onto conveyor pos. 31. The system is equipped with a detector that controls the bridge ensuring it is raised before the pile moves.

Pos. 31 (Bobst 130)
The chain conveyor pos. 31 is installed on the elevation table of the Bobst. (A ready signal will be given to the Bobst.) The design of the conveyor ensures that the fingers from the Bobst die cutters can go between the chains and lift the remaining part of the pile ensuring continuous production of the machine.
Functional description Section 8 (Transfer Cart)
The transfer cart has room for a pallet and a pile at the same time. It is armed with safety scanners, “Sick S3000”, to stop the cart if a person is on the track in front of the cart. On both sides of the cart there are placed overhang sensors. These photocells are not for personnel safety, only for machine protection. **The cart can only move if there is an ok from the safety scanners and the overhang sensors.**

At the end of the track there is placed a distance laser scanner, “Sick DT500”, which sends the cart position to the control system over RS422.

It is possible to drive the cart manually from the cart.

Pos. 3.1 (Receive a Pallet)
It is possible to receive a pallet from position 1, 2, 9, 11, 12, 13, 14 and 15, and to send a pallet to position 4 and 10 in automatic mode.

To pick up a pallet from a roller conveyor, the cart moves with high speed to a point close to position and decelerates to a low speed to stop in position.

When the cart go to low speed the front position photocells start to look for the pallet, when it see the pallet, it will save the position and save it when the front position photocells goes “OFF” it saves the position. Afterwards the middle position of the pallet is calculator, and moves the cart to the middle position.?????

When the cart is in position, the position is checked with an inductive sensor to confirm the position. If the cart is not in the right position, there is an alarm given on the operating screens.

Then the chain conveyor on the cart and the roller conveyor are started, and the pallet is transferred to the cart. If the remotest overhang sensor is activated under the transport, the pallet is stopped, and an alarm is given on the operating screens.

Pos. 3.1(Delivery of a Pallet)
After the pickup of the pallet, the cart moves with high speed to a point close to the destination position and decelerates to a low speed to stop in position.

When the cart is in position, the position is checked with an inductive sensor to confirm the position. If the cart is not in the right position, there is an alarm given on the operating screens.

Then the chain conveyor on the cart and the conveyor are started, and the pallet is transferred to the destination conveyor.
Pos. 3.2 (Receive a Pile)
It is possible to receive a pile from position 4, and to send a pile to position 16 and 26 in automatic mode.

To pick up a pile from the chain conveyor pos. 4, the cart moves with high speed to a point close to position and decelerates to a low speed to stop in position.

When the cart is in position, the position is checked with an inductive sensor to confirm the position. If the cart is not in the right position, there is an alarm given on the operating screens.

Then the chain conveyor on the cart and the chain conveyor are started, and the pile is transferred to the cart. If the pile is transported and the remotest overhangs sensor is activated the transport is stopped, and an alarm is given on the operating screens.

Pos. 3.1 (Delivery of a Pile)
After the pickup of the pile, the cart moves with high speed to a point close to the destination position and decelerates to a low speed to stop in position.

When the cart is in position, the position is checked with an inductive sensor to confirm the position. If the cart is not in the right position, there is an alarm given on the operating screens.

Then the chain conveyor on the cart and the destination conveyor are started, and the pile is transferred to the destination conveyor.
System flow
After the cart has delivered a pile or if the cart is empty the control system will calculate a new flow of pallets and piles between load zone, store roller conveyors, pile-preparing machine and receiving chain conveyors in front of the Bobst die cutters.

Normally the control system will keep an equal number of piles in front of each Bobst, but the operator has an opportunity to set a different setup. For example it is possible to have “x” more piles in front of Bobst 130 than in front of Bobst 142, or opposite. The number of “x” is limited to 4 piles in front of Bobst 130 and 2 piles in front of Bobst 142.

The priority of Bobst 130/142 can be set in the control system. This sends the next pile to the Bobst that have the highest priority if the number of piles in front of the Bobst is equal.

It is possible to have two “Job number” allocated to a Bobst: The actual “Job number” which is the piles running on the Bobst and the next “Job number’s” piles. This means that when all the piles to the first Job number have been transported to the Bobst, the pile in the next Job number automatically follows.

The Bobst operator needs to key in the following information’s:
- The priority of Bobst 142/130.
- If not equal numbers of piles in front of each Bobst, then the different setup (option)
- The actual Job number
- The next Job number (option)

This system ensures the Bobst die cutters are always supplied with piles in the right order.
Operating screens/instructions
Adjustments and maintenance

Electrification maintenance routine of the system.

On a weekly basis:
- All photocells (sender, receiver and/or mirror) and optical photocells are to be cleaned for dust or the like at least once a week, or as required.
- The PLC backup battery is to be cleaned.

On a monthly basis:
- All sensors are to be examined to check if they have become loose. This includes all inductive sensors, photocells, optical photocells, switches and ultra-sound sensors.
- All plugs of inductive sensors, photocells and ultra-sound sensors are to be checked regularly to make sure that they are not loose.
- All glow lamps in panels and desk are to be checked every month, or as required.
Faults / fault finding

In general

Never reset a fault without having found its origin and rectifying this. When a fault has been found and rectified it is to be reset on the operator’s panel in the main panel.

You should also be aware of frequently repeated faults, and as far as possible they should be registered since it will relieve future faultfinding.

Every known fault will appear in the display of the operator’s panel on the main panel. These texts are described in section 5.6.

Other fault possibilities and proposals for solutions are stated below.

Safety switches

At each motor a motor switch (repair switch) has been mounted, which is to be disconnected every time repairs or work on the system are to be carried out in areas where the motor is situated. Since the motor switch only disconnects one motor and has no feedback to the PLC, any pallet arriving from behind will attempt to run into the conveyor. After having completed the work, the motor switch is always to be switched on again. Should this not be done, the system will make a time-out message on the display.

The motor switch is not to be used to start and stop the motor, since it is not constructed for this purpose.

Power supply fault

In case of power supply fault or the main panel being switched off, the emergency stop relay will be disconnected and should be reset before the restart procedure can take place.

Fuses

In case something is not working, the sensor is out of service, the PLC is out of service etc, always check the fuses first since they may be disconnected. If a fuse that you are trying to connect disconnects right away, an electrician should be fetched.

Furthermore, 24-volt wires are protected by glass fuses, and if one of these burns(?), a green diode on the fuse terminal screw in question will no longer be luminous.

A sensor does not work

1. If a sensor is luminous when there is voltage to it, it is OK (photocells sometimes work inverted).
2. If a sensor is influenced, the corresponding entry should be luminous on the PLC.
3. If points 1 and 2 are not OK, the sensor is defect, or the connection has been disconnected.
The sensor is not correctly adjusted

Inductive sensors are to be adjusted in the following way:
There should be approximately 1-2 mm air between the reading points and the sensor.

Optical photocells are adjusted to read as dark areas of the pallets as possible, because
the light areas may reflect.

Photocells are adjusted to read the middle of the mirror.

Photocells of the type sender - receiver should always be able to “see” each other.

Pallet does not stop on the sensor
1. The sensor is not correctly adjusted.
2. The sensor from which the pallet is coming may still be active.
3. The plug of the sensor has become loose.
4. The sensor is defect
5. The pallet is defect

Pallet stops on a sensor and does not proceed
1. In case of emergency stop, thermo fault, safety switch fault etc, these are to be reset.
2. Is there light in the sensor and the PLC access? If not, it is to be checked whether
   a fuse has been disconnected, or the PLC has stopped.
3. Check if the sensor to which the pallet is to go is vacant.
   Beware that there may be several sensors in each case.
Alarms

A survey of all alarms of the system and the succeeding fault causes and proposals for solution for each alarm.
Appendix 7

Summary
Summary

The present paper has been produced with the aim of investigating the concept of genre analysis within non-fictional genres. The text material chosen for analysis consists of six individual texts, the genre-texts, taken from a technical system description. The main question put forward by the paper is whether these six texts belong to the same genre within technical language. As an additional question, the paper also investigates whether the chosen model for analysis is adequate.

The paper consists of four main chapters plus an introduction and a conclusion. The first main chapter (chapter 2) presents the theoretical considerations which form the basis for the analysis. The theories are based on the works of two expert analysts: Vijay K. Bhatia and John M. Swales. The theories of Swales applied in the paper concentrate on the definition of the concept of genre. These theories are presented and discussed in order to provide a relevant basis for the assessment of the nature of the genre-texts. Bhatia’s theories are used as a working model. The genre-texts are analysed in accordance with a very thorough model described by Bhatia. Both experts stress the significance of the communicative purposes of genre-texts but they do not agree as to exactly how important this aspect is.

Chapter 3 contains a detailed description of the genre-texts. The main focus of the description is to point out the most important and dominant linguistic features of the six texts. Generally, it turns out that some common features are simple sentences, present tense verb forms, many repetitions of technical verbs and abbreviations, and lists included in the texts. The description is carried out very thoroughly in order to provide the best possible starting point for the analysis.

The analysis in chapter 4 deals with all six genre-texts in all relevant levels. The analysis model considers issues like intuitive genre-placement, selection of text corpus and description of the institutional context. A more important feature of the analysis is the defining of the genre-texts’ senders and receivers, the relationships between people which are involved with the texts in some way, and the situational context and professional field within which the texts are used. However, the most significant part of the model is the linguistic analysis which is divided into three main sections. The lexico-grammatical analysis deals with the purely
linguistic features of the texts, i.e. lexical choices, grammatical features and sentence structure. The analysis of textualisation is concerned with certain patterns which may be found in the texts and which may be typical of specific genres. The structural interpretation investigates the texts internal build-up and structure in order to find out if there are any patterns or conventions which may reveal the nature of the genre.

The discussion in chapter 5 takes into consideration all the results yielded by the analysis and tries to put them into a relevant connection in order to come up with a reasonable conclusion. It turns out that most of the results from the analysis are useful; however, some seem to be irrelevant or superfluous. The results from the general analysis emphasises that the genre-texts belong to the technical genre. The lexico-grammatical analysis reveals some differences in the features of the six texts while the analysis of textualisation only confirms the genre-texts as being technical. During the structural interpretation, a new angle is added to the analysis of the texts and the result of this is useful in the further discussion. Taking into consideration an assessment of the communicative purposes of the genre-texts, it is possible to divide the six texts within different categories: Four fall into the genre of technical system descriptions, one follows as an addition to a technical system description, and one qualifies as a technical operations manual. However, the category of technical operations manuals may be a sub-genre derived from the genre of technical system descriptions.

The sixth and conclusive chapter sums up the results from especially chapter 5 and answers the two questions of the paper: The genre-texts do not belong to the same genre except if the operations manual would qualify as a sub-genre for system descriptions. The analysis model is mostly adequate but also yields some irrelevant or superfluous results.