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Jon Bing

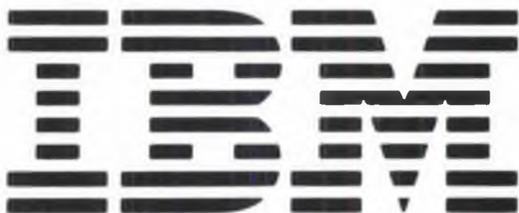
ELECTRONIC PUBLISHING

**Data bases and
computer programs**

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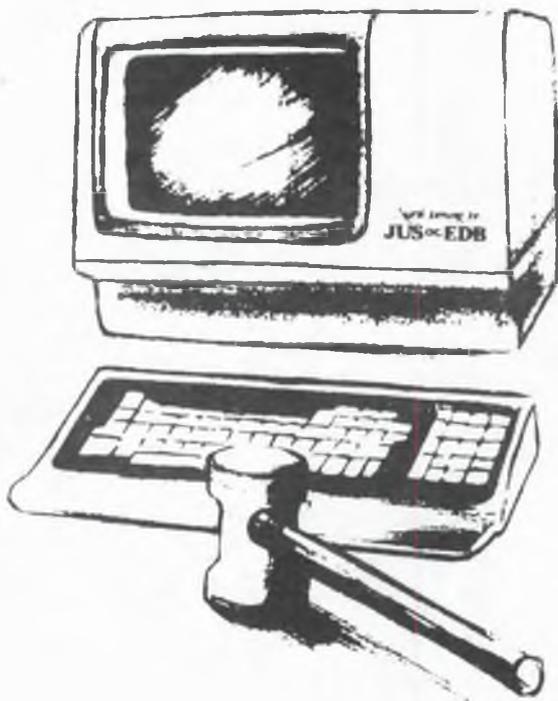
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Jon Bing

ELECTRONIC PUBLISHING

Data bases
and
computer programs

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This report is commissioned by Kopinor
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FOREWORD

This report has been commissioned by Kopinor, the Norwegian collecting society for reprography. It is based on the report by Jon Skjørshammer (*Opphavsrett, databaser og datamaskinprogrammer - kontraktsrettslige aspekter*, Norwegian University Press, CompLex 4/86, commissioned also by Kopinor).

The two aspects of the basic report - that of data base publishing and the publication of computer programs - have been separated in two rather independent papers. This is partly due to the hope of Kopinor that the papers may be given separate distribution through other channels, and that the adopted form may facilitate this.¹ The papers emphasize certain problems thought of general interest emerging through his study. Though this report is basic to the present paper, the paper is the responsibility of its author alone.

The author acknowledges the assistance of dr Joseph A Cannataci in finalizing the English version of the paper, and the many valuable contributions of John-Willy Rudolph, the executive director of Kopinor. Though many persons have contributed to the final result, the responsibility for errors and omissions rests with the author alone.

Skillebekk, February 1987
Jon Bing

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DATA BASE PUBLISHING

1. Introduction: What is data base publishing?

"Publishing" is a concept commonly used in relation to traditional book publishing, and which is understood as "works published with the consent of their authors, whatever may be the means of manufacture of the copies, provided that the availability of such copies has been such as to satisfy the reasonable requirements of the public ..."² In the definition, one notices that the manufacture of physical copies is a crucial element. Therefore, the phrase "data base publishing" is somewhat of a misnomer, as - which we shall see below - data bases may be made available to the public without distributing any physical copies of the works in question. It is not unusual for such misnomers to arise - another popular phrase is that of "electronic mail", which characterizes something important in an electronic message system even when "mail" generally is defined as written messages enclosed in an envelope.

Such misnomers actually remind us of some aspects of the paradoxical nature of modern information technology: Data base publishing is an activity with a function identical to publishing, but replacing the traditional element of the printed book with computer technology, as "electronic mail" has the same function as traditional mail, but replaces the letter by a digital message.

Before analyzing the legal aspects of data base publishing, it might be appropriate to give an example. A typical example of current data base publishing is a service based on a newspaper or a magazine. Such services are offered by Transglobe of Canada, Mead Data Central of USA (NEXIS), Aftenposten in Norway (A-tekst) etc.

² Berne Convention, art 3, paragraph (3).

The basic service is the traditional paper copy of the newspaper or the magazine, published and distributed in the usual way. The articles in the newspaper have authors, and the newspaper itself has a publisher.

The text of the newspaper is then prepared for electronic publishing. As the text generally has been prepared by the word processor system of the newspaper, or - if generated by an outside author - has been keyed in to the system for computer assisted printing, the text is already in machine-readable form. It will, however, be "massaged" for use in the computerized information system - for instance the layout may be amended, special characters which are governing the typographical layout may be removed etc. The result is a clean text in machine-readable form.

The next stage will be the incorporation of the text in the data base. This will be facilitated by an updating program, which makes the structure of the text explicit - inserting electronic flags signalling when a new article starts, what is the headline, what is the author's name, what is the beginning of the first paragraph, what is the beginning of the first sentence in the paragraph, what is the beginning of the first word, what is the end of the first word etc. This is a detailed description of the structural information in the text which humans discern at a glance, but which it is convenient to make quite explicit to the computer system for later utilization. In this way, each word in the text is assigned an address, generally using the four levels of document, paragraph, sentence and word within sentence.

At the same time, the words will be sorted into an alphabetical index. In this index each different word will occur once, but associated with each word will be as many addresses as there are occurrences of that word in the text.

In this way, the computerized system will have organized the text in two files - a *text file*, which is identical to the original text with added structural information, and a *search file*, where the same words occur,³ but where they are sorted alphabetically with addresses serving as pointers to the text file. From the search file one actually might reconstruct the text file, taking the addresses, and filling in the associated word at the proper places throughout a text. For this reason, the search file often is referred to as the *inverted file*.

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3. In actual practice, in general a small number of commonly occurring words, like prepositions, modal verbs, pronouns etc are eliminated. In a text, some 40-50 per cent of the total number of words are made up by these common words, and by eliminating them, the volume of the search file may be cut down

In addition, the system will often contain information on which words occur in pre-defined fields in the document - like words occurring in the *title*, in the field assigned to *author's name* etc.

The user accessing this system, will retrieve documents by formulating a search request which specifies which words the user thinks characterize the document of interest. If the user looks for documents on IBM's personal computer, he may ask for any document containing the word IBM and the phrase "personal computer" or the abbreviation PC, which might come out something like:

ibm AND (personal computer OR pc)?

If the user was interested only in documents which mentioned the IBM personal computer in its title, the request might look something like:

TITLE: ibm AND (personal computer OR pc)?

The retrieval system sketched above is a typical text retrieval system. This will be typically used for the services discussed in this paper, and is indeed used by those three services mentioned in passing above. The details of the retrieval techniques are, however, of minor importance. The essential feature will be the inclusion of a text (like an article) in a computerized system. Whether this document is retrieved by the user employing a text retrieval system, a more traditional data base system or another method, is of small legal importance. The description above is only offered as a sketchy explanation in order to provide some background for the following legal analysis.

When the user retrieves a document, he can have that document communicated to him from the service provider. The document is then converted into a string of signals for transfer through a telecommunication network, being received by the equipment of the user, and there converted once more into characters used by the computer to represent text. As such the document may be displayed on the screen of the user's terminal or printed out by an attached printer. If the user has local storage devices linked to his equipment, the text may also be entered into this, and a local machine-readable copy made of the document (downloading). In this way, the user also will be able to inspect the document in question after disconnecting from the service, and the document may be subject to re-use, for instance annexed to a document created by the user. The user may also initiate a

secondary distribution of the text, communicating the document to a client or partner.

This small sketch is a rather general overview of an information system, pivoting on a central data base which the user accesses through a telecommunication link. Other possibilities (for instance those related to compact disks) will be mentioned below.

In this paper, we will concentrate on the legal problems related to how authors should exercise control over the use of their work within this environment. Many interesting legal aspects, which are discussed in the report on which this paper is based, will therefore be excluded.

The actors involved in making the documents available to the public, may be classified in four groups. First is the author of the original work which is to be documented. Second is the publisher - who contacts the authors, acquires their texts and organizes these texts in a data base. Third, there may be a data base operator, who operates the computer and the telecommunication facilities necessary for making the documents available to the public. Often the publisher operates such a service himself, but there is some justification to maintain that there is a tendency for data base operators to take on the responsibility of interfacing with the public - having the same relation to the publisher as traditional booksellers (more or less). And, fourth, is the user - often called the end user, to emphasize his role as the logical end of the communication process, though - as indicated above - the end user may indeed be the starting point of a secondary diffusion of the material.

2. The publisher: Clearing the rights.

The publisher has here - as in traditional publication systems - the role of an intermediary between the author and the end users. The publisher tries to identify which products are in demand, and satisfy this demand by offering an adequate information service.

This generally implies that the publisher has to acquire appropriate texts from authors. In our initial example of information systems based on newspapers, these authors would fall into several categories. It would firstly be the journalists employed by the publisher (newspaper). Second, it would be professional free-lance writers. Third, it would be the occasional writer of, for instance, letters to the editor, expert comments etc. Fourth, it would be press bureaux and other organizations communicating news or telegrams to the publisher.

In order to print these texts in the newspaper, the publisher has to acquire the necessary copyright license. For secondary use in a data base, the license has to be extended to publishing through a computerized information service. We easily see that there may be disagreement over consideration etc between the publisher and the authors. But we also see that it may be difficult to conclude the necessary agreements, as the primary license is limited to the traditional publication. Contracting with the occasional writer may be especially difficult, because no real contract is negotiated - the letter to the editor just arrives at the desk, and though the presumption is that necessary license to print the letter is granted, this does not necessarily extend to inclusion in the data base. There may be difficulties of a different kind in the case of press bureaux and similar organizations: The bureau may participate in an other information service, or limitations may be imposed because several of its subscribers want to include material from the bureau in its service, and the bureau may have granted an exclusive license to one of these subscribers.

These problems have to be tackled by the publisher. Through contractual - or quasi-contractual⁴ - means, a license to include the relevant material must be negotiated between the publisher and each and every author. There is no doubt that the inclusion of a copyrighted work in a data base with a view of offering this to the public, demands the consent of the author.

However, this only holds for copyrighted material. Several computerized services only offers non-copyrighted material. One of the traditional areas of computerized information systems is that of legal information services, such as exist in North-America and in most European countries. Such services include statutes, regulations, court decisions etc in their data bases, and most countries exclude such material from the area of copyright.⁵ In addition, the freedom of information laws in some countries have made additional non-copyrighted material available to publishers, for instance government reports or briefs, correspondence, registers etc, which also in many jurisdictions are excluded from copyright protection. In these cases, the publisher obviously needs not negotiate a

An attempt to solve the issue of the occasional writers may be the printing of a notice in the newspaper to the effect that the publisher will interpret the offer of material as an offer extended to inclusion in the computerized service.

The doctrine of Crown Copyright is recognized in some countries, and at least in one country - Australia - Crown Copyright is used to control the development of computerized legal information services.

license to make the material available. On the other hand, the publisher cannot obtain the position in the market which, for instance, an exclusive license would imply.

In addition there obviously is material which is not copyrighted due to its nature - the material not qualifying as work under copyright law. A Norwegian example may be the tax registers which are made public by the government, specifying taxable income and estate for each person, and of which extracts are published by private companies. This material does not attract copyright protection. Another example might be a bibliography, giving author's name, title and a few standard items of information for each entry. This would also be excluded from copyright protection. The distinction is traditional in copyright law, but the threshold for qualifying to copyright protection may be different between jurisdictions.⁶

Finally, it should be pointed out that the publisher, within his organizations, often employs persons who create the works which are documented. Mention has already been made of the newspaper employing journalists. But we should also be aware of information services concerned with documenting information on copyrighted works without including that work itself. The typical example is the bibliographical information service, where the publisher employs experts indexing books and publications, and giving an abstract of their content. This will give information on the documented books and publications, but the documents in the information system will consist of a brief record, containing standard items of information, indexing terms and an abstract. The abstract is generally subject to copyright, but the author will generally be the abstracter rather than the author of the original publication abstracted. In a similar way, a publisher may employ persons to use documents made available through the freedom of information acts as raw material, for instance translating public reports into another language, summarizing them or otherwise presenting them in a "value added" form. Often the amendments or additional work is of a qualified nature, making the documents in the information service copyrighted work. In this way, the service provides copyrighted material based on non-copyrighted public documents. Though other publishers may gain access to the same non-copyrighted material, the first publisher has protection of his qualified "added value".

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5. As mentioned below, the data base consisting of elements which by themselves do not attract copyright protection, may nevertheless be protected as such.

In the discussion until now we have presumed that the computerized information service is secondary to some primary traditional publication scheme. This corresponds to the situation as it generally is today. But this situation obviously is of a transient character. Material may be produced directly for the computerized service, and not being available through an alternative conventional service.⁷ In such situations, the same arguments as above will hold true, but the publisher will then have to acquire a primary license for use of the work in the computerized service, generally by contracting directly with the author. In the case of the publisher employing persons to write the material, as exemplified for production of a bibliographical service or a service based on public non-copyrighted documents, this primary acquisition of license will be part of the employment contract. In other cases, a contract corresponding to the publisher's agreement for conventional books, will have to be negotiated.

3. The author: Schemes for pricing

Changing the perspective to the author, copyright gives the author a position from which to negotiate conditions for making the work available through a computerized service. An "electronic publication agreement" should include a number of different elements, and we will return to some of them below in our discussion of the moral rights of the author.

In our discussion, we presume that the author has legal freedom of licensing the work to the data base publisher. One may query whether this will be the case where the author already has licensed the right of traditional publication to a book publisher. To what extent such contracts exclude each other, has to be referred to an interpretation of the contracts themselves. There is no difficulty in presuming that an author retains the right to license data base publishing explicitly when contracting for book publishing. But nevertheless, a bond of loyalty has been created between the parties. It would therefore be fair to maintain that the author should be careful to avoid conflicts, and look closely at the contracts in question as well as the customary law within the jurisdiction. In many jurisdictions, book publishers acquire a major part of the copyright through a book publishing agreement, while in others - most clearly seen in the Nordic countries - the copyright transferred to the publisher is of a more limited scope.

7. In legal information services, the inclusion of "unreported cases" has actually given occasion for some policy discussion.

For the author, however, the major policy issue will be the pricing - how much and in which way should payment be made for the use of his work in the computerized information system? In this paper, we will not comment upon how much the author reasonably may ask as payment, but indicate some possible payment schemes.

Traditionally, payment to authors of literary works is related to the intensity of the use. This is most evident with respect to royalties for the sale of books, which is traditionally calculated as a fraction of the price of the book (sales royalty). This implies that payment is made relative to the sale of the book over time, and that the publisher has to keep track of accumulated royalties for the whole period the book is in print. An alternative is a lump sum payment, but this is also generally calculated with respect to the intensity of use, for instance as a function of the edition printed (production royalty), lapsed time for performance of the text (a rate per minute for broadcasting) or the circulation of a newspaper or journal (in numbers of subscribers or average edition per issue).

This use-related payment may be contrasted to work related payment, where one pays for the time spent in producing the text. This latter payment scheme is mainly adopted for authors employed to produce texts, typically journalists employed by a newspaper.

With respect to computerized information systems, one may expect that the publisher will adopt work related schemes for payment of employed authors (who produce abstracts or other documents within the publisher's organization). For outside authors, a different scheme will probably be adopted - the publisher initially paying less in average, but with the possibility of further higher payment if the document in question is subject to intensive use.

If adopting a use related payment, the question will arise how to measure intensity of use in the computerized system. Initially, it should be emphasized that the software used in the system may limit the choices mentioned below, if the housekeeping routines of the programs do not, for instance, record how many times the document is accessed.

The most simple use related scheme is to have a payment related to the period in which the text is made available (stored) in the system, i.e. *a rate related to time*. This may be an annual, quarterly, monthly or weekly rate, according to the currency of the service. From the author's point of view, this has the attractive feature of making the publisher review whether the document is worthwhile to retain in the system, encouraging the publisher to vet the system for dated documents etc. The publisher would then stop paying the license fee, and the rights revoke to the author - which in this way might exercise some appropriate control over the work, and make the work available for re-negotiation

with another data base publisher. Time-related license fees are common in the computer business (for instance for major software packages), and may therefore seem to fit into the general scheme of license payments quite well.

Another simple scheme would be to relate the license fee to the *length* of the document. It would seem appropriate to pay a higher fee for a bulky document like a text book, than for a small document like a brief paper. This also has traditions with respect to conventional systems: Sales royalty is related to the price of the book, and that price obviously is related to production costs - a large book costing more than a slim book; journals have traditionally paid for circulation per word or line in some countries.

Another alternative would be to relate the license fee to the number of subscribers, passwords or access codes. This would indicate the potential use of the service, and therefore also imply the intensity of use. Obviously, this could be combined with the time related license fee, regulating this fee according to the number of subscribers at the date which the contract is concluded or renewed (or the average number of subscribers in the past period).

A fourth possibility would be to relate the license fee to *the number of accesses* made to the document in the text file. This would imply that a user explicitly requests to have the document communicated to his local terminal, and may be the scheme corresponding best to the sales royalty scheme for conventional book publishing. One might want to enhance this scheme by keeping track of the time which the user browses in the document, but this may also be seen as less appropriate, as the reasons for user time in browse mode may be several - the user may be reading the document, but the user may also be called away from the terminal, or the user may download the document for later local re-use. It may therefore be argued that if one adopts the number of accesses as a basis for payment, one should not try to further enhance this scheme.

One will see that both payment related to time and length may be appropriate basis for calculating a lump sum payment (with respect to payment relating to time, the lump sum will, however, only give license for a certain period after which the contract would have to be renewed and a new lump sum paid). Payment related to the number of accesses would, on the other hand, presume that the publisher kept continuous track of the author's account, paying retrospectively monthly, quarterly or annually.⁸

This may also give rise to a question of author audit, to confirm the records of the publisher. The problems of control may be an argument for an enhanced role for collecting societies, see below at sect 8.

Obviously, these schemes may be combined in different ways. It may be appropriate, for instance, to combine time and length related schemes, attaching a rather low license fee for offering the document to the public. This would encourage the publisher to offer many documents, as the offer itself would not cost too much. This may be justified by pointing out that also in retrieving documents, the users would utilize documents not accessed through the representation of these documents in the search file.⁹ On top of this low fee, an additional extra fee per access (possibly above a certain threshold number) could be given. In this way, the author whose work was heavily used would be paid more than the one whose works attracted little interest in the market place. Though somewhat complicated, the scheme lends itself easily to computerization and as computer facilities have to be available for the service itself, this extra overhead for accounting purposes may be relatively small or even marginal (presuming that the retrieval software is designed for recording the necessary information).

As mentioned, these schemes are mainly oriented towards outside authors. For *inhouse authors*, the employer will pay wages. But in some situations the question of additional payment for utilizing the documents in a computerized service will arise. Typically in a newspaper, the journalists have wages which are related to the traditional utilization of their work. If extra utilization in a computerized system is contemplated, one may either take the view that as this implies no extra effort, no extra payment should be made; or that increased utilization of a copyrighted work implies increased payment.

There is no logical choice between these two alternatives, but a reasoning related to copyright law favors the latter. In such a situation, one has seen solutions where the publisher pays an additional fee calculated as a percentage of the original payment, increasing the wages by a certain factor and giving the employer license for the additional utilization. One has also seen examples of the publisher paying an annual or a monthly lump sum to the employees as a group, a sum which then is utilized for common benefits - like, for instance, training or scholarships.¹⁰

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9. The search file as in contrast to the text file, the former used to identify a possibly relevant document, the latter to actually access and read that document. Also a document not read by the end user has been represented in the search file and contributed to the retrieval result.
 10. Such agreements have been negotiated as the basis for several pilot schemes in Scandinavia.

The first of these solutions may give the individual author an advantage, but we are inclined to think that this advantage is only temporal, and will be eroded through the general regulation of wages during a few years. Therefore we are inclined towards the second solution, which has the advantage of being more easily regulated in accordance with the growth and economy of the publisher's service. But there are obviously many other elements in such situations which are relevant for the considerations, and it would therefore be inappropriate in this paper to make recommendations beyond the indication of these two solutions.

4. The data base operator: A computer service bureau

If the publisher does not operate his own service, a contract with a data base operator has to be negotiated.

In fact, several different technical solutions may be found for the cooperation between the publisher and an operator.

The most elementary scheme would be to make the texts available to the data base operator in a way convenient to the publisher without making any special efforts to make them appropriate for use in the computerized service. The data base operator would then have to convert the texts into an appropriate format, update the data bases etc. The role of the publisher would here only be to clear the licenses, and exercise some control of the operation to ensure that the conditions in the basic licenses as well as those in the contract between the publisher and the operator are fulfilled.

The most traditional way is to have the data base mounted at the computer facility of the operator. The publisher and operator agree on a routine for updating the data base, for instance by having tapes physically transported from the word processing or printing system of the publisher.

The publisher may obviously also be linked directly through terminals to the computer system of the operator, and thus be able to transfer files from the publisher's to the operator's system, as well as make amendments directly in the files held at the operator's site. This solution gives the publisher both greater control and increased responsibility of the operation of the system.

A third solution would be to maintain the data base in the system of the publisher, and have the operator to open a gateway to this data base. Users in the network maintained by the operator are able to select the data base of the publisher and be directly gatewayed to that system. Such agreements may be entered with several operators, making the data base of the publisher a node in

several networks. In this case, the publisher would have full control of the content and quality of the data base, but being free from the maintaining of telecommunication facilities and a number of other housekeeping duties. This solution seems to be given increased attention.

Finally, the publisher may take on the whole responsibility of running the system - merging the functions of data base operator and publisher.

Obviously, the contractual relationship must adapt itself to which actual arrangement has been made between the publisher and operator. But a few aspects of that relationship may be mentioned.

First, the publisher must ensure that the obligations undertaken in the license agreement with the authors, are carried through into the contract with the operator. If a license expires, the publisher has to ensure that the document in question is deleted. If the payment to the author is calculated based on number of accesses, the publisher has to ensure that a record is kept at the operator's. More examples could be mentioned.

Second, the publisher has to ensure data quality by contractual provisions. There may be need for a warranty that the data meet certain data quality standards, error-rates given, for instances, in errors per 1 000 characters. There should be agreement on update frequency (average time between updates) and update response (average lapsed time from material made available to the operator and until it is available in the system) etc. The publisher may want to have samples of each update, routines for measurement of error rate etc. Provisions for up-time warranties, and back-up procedures and facilities may be necessary.

Third, the publisher has to contract for the legal position of the operator with respect to the data base. Should the operator have an exclusive right of offering the material on the market place? May the operator enter into cooperation with other operators (sub-operators), and in that case, may the operator make physical copies of the data bases to be used in the computer systems of sub-operators?

Four, the pricing schemes of the operators will have to be regulated. The publisher's revenue is derived from end user payments. Generally, the end user will pay to the operator, who will forward the gross payment to the publisher after deducting a share to cover the operator's service, and the publisher will in turn settle with the authors. The way the operator calculates his share of the end user payment may vary. Obviously, the publisher may want to contract for how the end user is to be billed, and the share the operator is to take out of the gross profit. Also payment for additional services like off-line printing, on line ordering of conventional publications, and message switching should be addressed. Below, we will return to schemes for end user payments.

Five, the publisher may want to include provisions on the service quality to be offered the end user, which may include things like communication protocols to be offered, networks through which the operator should support access, average response times for standard requests etc.

In general, the contract with the operator corresponds with contracts for computer service bureaux. The differences are mainly derived from the two other parties present in the situation: the author and the end user. The publisher has to take both these parties into consideration when negotiating the contract with the operator. The duties to the author have to be reflected in the contract, as well as the service quality the publisher would like to offer the end user.

5. The data base: Its legal nature

In our initial discussion, we have described the different possibilities that the *documents* to be included in the data base may take: They may be copyrighted works, documents excluded from copyright (statutes, public documents) or items of data not subject to copyright themselves.

The data base as such may, however, be protected in its own right - not only indirectly through the protection of the documents or items included in the data base.

First, the data base may be a *collections of works subject to copyright*.¹¹ This presumes that the elements of the data base themselves are copyrighted works, and it presumes that the collecting and editing of the data base meets the test of individuality and originality in copyright law. This would make the data base correspond to a conventional anthology, where the selection and effort of an editor have a sufficient quality to satisfy the test. It may be maintained that though this is typical for edited books, it will not necessarily be as typical for data bases. The criteria for selection of material to a data base may often be quite strict, with little leeway for individual choice by an editor - for instance, all books published within a country are abstracted and the abstracts included in the data base. But the possibility remains that data bases are collections subject to copyright.

1. Cf Berne Convention art 2, paragraph (2) which make mention of collections "... which by reason of the selection and arrangement of their contents, constitute intellectual creations ..."

Second, the data bases may be *simple copyrighted works* in their own right. This does not presume that the elements themselves are subject to copyright, but the creation of the data base meets the test of individuality and originality. A data base of statutes may therefore attract copyright if the selection or arrangement meets this test, as may a data base of individual information items, if this is the case. As mentioned above, the criteria for selecting material to a data base often are of a strict nature, and in that case there is not sufficient leeway for individual selection for the data base to be considered a copyrighted work. One should, however, be aware of the fact that this threshold is judged differently in different jurisdictions. The telephone directory is seen as a copyrighted work in the Netherlands, but not in Norway. This possibility of disagreement between national laws may be an added complexity to information services offered on the international market.

Third, some jurisdiction have a *sui generis protection of compilations as such*. In the Nordic countries, a section in the copyright acts¹² offers protection to what are described as "catalogues" or other "collections of a large number of data". This is a description which neatly fits the typical data base (though it was not developed with computer technology in mind), and it is generally thought to apply to data bases. Such protection is offered to data bases of which the elements are copyrighted works or simple information items - though the provision would seem to be most appropriate for the latter case. Also with respect to the catalogue rule, protection is offered for reproduction of the catalogue as such, implying some statutory protection of downloading (see below).

Four, one should be aware of the possibility that the data base is not protected under copyright law at all - neither as a collection, nor as a simple copyrighted work, nor as a catalogue. In this case, no statutory protection of the data base is extended, and the publisher has to be even more careful of obtaining protection through the contract with the end user.

12. In the Norwegian act, this is sect 43, and the other Nordic acts have corresponding provisions. The protection is not, however, offered outside the jurisdiction.

6. The end user: The contract for information services.

The end user has to contract for the service. The parties to this contract will be the end user on one side and a representative of the service on the other side. Whether this representative will be the publisher or the operator, will depend on the contractual arrangements between these parties. In this context, this does not make any great difference, and we will presume - which probably corresponds to what is most usual - that the representative is the operator.

First, it should be emphasized that a contract is desirable. It may be thought that this contractual mechanism may be reduced to a very simple exchange of messages, the user acquiring a pass-word and being assigned an account number, which is the minimum necessary to get access to the service. This would, however, presume that the background law of the jurisdiction was fully satisfactory to the providers of the service. As this rarely is the case, a *subscription contract* is necessary.

Second, one should ensure that this contract is a real agreement. In the computer business, one has seen a tendency only to communicate to the user the terms on which the service is provided. By accessing the service, this is taken to be conclusive action which seals the contract. It is doubtful whether the courts of many jurisdictions will accept this as a real contract. The law of contracts, especially how contracts are accepted, has rather different rules varying from country to country. But it might be prudent to take the trouble of actually having a written document communicated to the user for the user to sign and return, confirming that the user really is aware of the terms on which the service is provided. It may also be appropriate to reflect on whether it shall be possible for users to negotiate special terms - there obviously are user categories which may want non-standard contracts.¹³

The contract may specify the equipment which the user employs for accessing the service. The operator may actually support a large number of types

1. A typical example is educational institutions. The publisher may want to facilitate the use of the service of such institutions, as this may seem appropriate in a marketing perspective. Legal information services do, for instance, generally offer their service on especially favorable terms to law schools.

of local equipment etc. For instance, the texts displayed to the user may be written in different languages according to the nationality of the user, as may the command language and character set activated. Also, the provider may only make a selection of the service available to some users in order, for instance, to protect the data base from downloading.¹⁴

The contract has to govern a large number of aspects. In the next section we will return to one problem related to the general copyright issue, that of downloading. In this section, we will make a few remarks on the pricing structures. This is obviously open for negotiations between the parties, therefore remarks in a general paper such as this, have to be strictly limited.

Seen from the point of the user, he has to pay for a number of elements - his own local equipment, including modem or similar physical installation to access the telecommunication network, telecommunication costs, costs for using the computer system of the operator, costs for the service provided by the publisher and - finally - the fee to the author. Generally, the operator bills the user, and the cost elements are limited to those relating to the operator, publisher and author. However, many operators also carry the telecommunication costs (especially if the user is connected through package switched networks).

User research has indicated that users require a *transparent* pricing structure. Many traditional computer facilities price their services according to which resources at the bureau are being employed, which results in a pricing algorithm difficult for the user to understand. The effect is experienced as a lack of control over service costs, which may have adverse effects on the pick-up rate of the use of the service.

The most simple transparent tariff structure is based on *connect time*, regardless of what the user is up to through that time. An average price currently in Europe is approximately \$ 100 per hour connect time. Another quite simple structure is to price each request or each entry (each time the user hits the "return"-key).

In addition, many providers have a flat rate *monthly fee* for keeping up the subscription. This may be appropriate also to ensure that subscribers are active users. It also makes it possible to take into account different aspects of the

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14. Mead Data Central, for instance, provides Encyclopedia Britannica on-line. Their license agreement with Encyclopedia Britannica does not allow downloading by users, and consequently this part of their service is only available to users accessing their data base through their own dumb custom-made terminals, and not through personal computers or work stations.

tuation of the user. The monthly fee may be made relative to what local equipment the user is accessing the system through - a dumb terminal being cheaper than a work station with downloading facilities. Also, the monthly fee may be relative to the number of active terminals the user is permitted to access the system through at the same time (relative to user passwords or terminal identifications). And, finally, the monthly fee may be relative to the monthly use, being reduced according to a scale as monthly use increases, thus encouraging the user to access the service.

Some services also have introduced an extra fee relative to the number of lines communicated to the user from the text file. This pricing policy is addressing the problem of downloading - if a user tried to download a large part of the data base rather than read a few documents on the screen, this extra fee would represent considerable cost and thereby discourage the user from downloading.

Finally, there may be a variation in the royalty paid to the authors reflected in the pricing structure. In a service containing both non-copyrighted material and copyrighted material, a surcharge may be asked from the user for access to copyrighted material. Also, the operator may offer data bases provided from several publishers, who have different price tags on their material. In such cases, the users are often given notice when using the service of differences in price for accessing the material.

7. Downloading: Local use and re-use.

Downloading is a term used to denote that the user has material communicated to *his* local computer facility, and stores the material at this facility.

The reason for storing the material may be the need for the user to inspect the material off-line at his leisure, thus saving the costs implied by telecommunication and connect time in the on-line environment.

But it may also be that the user wants to develop an in-house service drawing on the downloaded material. Downloading is often used to denote local reproduction of the whole or a large part of the data base - in this paper, it is used more generally of the reproduction of *any* part of the data base, also a single document.¹⁵

. It is not the only form of local reproduction - the traditional way of making a
continued on next page

The right of the user to download, should be regulated in the contract - and we will return to that aspect below. If there is no contractual provisions governing the situation, it will be governed by the general statutory provisions. Downloading results in the creation of a local machine-readable copy, which constitutes a reproduction. If the reproduction is of a copyrighted document, this falls within the exclusive right of the copyright holder and can only be made with his consent. But, in most European jurisdictions, the statute extends a license to the user to produce copies for "private use". Whether this is permitted, would rely on whether the reproduction is for private use - a judgement not easily made, especially as many jurisdictions interpret this also to include "private professional use". Obviously, as soon as the use is for more than the individual user in question - for instance for inclusion in an inhouse computer system accessible from several terminals in a local network - there is no question of private use. If the reproduction takes place in the home, and is only for the personal use of the user, it would be permissible. Between these two examples, there is a gray zone not easily resolved by applying the statutory provisions. This should be regulated in more detail, and by as clear criteria as possible, in the contract.

Many jurisdictions do not have this statutory license to reproduce for private use, this is - for instance - true for the US and UK, from whose territories many information services are offered. Again we see demonstrated how the international aspect of computerized services may create extra difficulties. Such services should be aware of this difference in national law, and try to regulate the right to download appropriately.

A contract deviating from the default statutory regulation will in general be upheld if part of a real agreement with the user, while it may be not taken into account if such agreement has not been secured, and the limitations are only stated in standard terms and which are not made part of a contract.

If the documents are not copyrighted, the copyright law does not offer any sort of protection for downloading. As mentioned, many data bases include non-copyrighted material. For such services, the contractual regulation of downloading becomes essential for control of the service.

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local copy is to make a printout when on-line to the computer. Operators also frequently provides central off-line printout service, which will result in a copy of the requested material forwarded by mail to the user. This form of reproduction will not be addressed in this section.

In regulating this, the provider of the service should take into account that there may be a real need for the user to download single documents. The user may want to include a copy of the document in an appendix to a report etc to prove a reference that is not readily available otherwise. Therefore, many providers allow downloading of single documents (also for non-private use), but limit this in other ways. Generally, limitations are related to the right to make the document available to a third party (for instance will the user not be allowed to make it available in machine-readable form to a third party unless part of a report prepared by the user himself, and unless making adequate reference to the source), and the right to include the document in inhouse information systems.

The gravest problem with these restrictions are the difficulty to enforce them with respect to users. Though users in general will follow the rules of the contract, it is difficult to disclose violations. The technology available in the environment of an on-line service not only makes non-contractual downloading possible - it makes it easy and straightforward in most situations. Though downloading should be regulated in the contract, one should also be aware of the possibility of a further diffusion by or to persons not party to the contract, and discuss how such a secondary diffusion should be addressed (see below).

Downloading the whole data base, or a large fraction of the data base, should, of course, be prohibited by contract. We will below briefly discuss the sale of copies of the data base (in practice in the form of compact disks), and there may obviously be a market for such a service. It is nevertheless clear that a subscription to a computerized information service does not give such a right - for this a special contract has to be entered.¹⁶

With respect to copyrighted documents, one may discuss whether the statutory license for private use may be applied. It can, we think, be rather bluntly stated that this statutory license does not give any possibility of reproducing the whole or large parts of the data base for private use - downloading of a whole data bases would exceed the limits implied by this provision and can only in very exceptional cases be justified by a reference to personal or private use.

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- i. It should be noted that there may be many situations in which the user has a loyal interest in downloading large fractions of the data base, and it will then be a question of market policy whether the provider of the service will permit this. Our point is that in these cases, a special contract should be negotiated, such possibilities should be excluded by the normal subscription contract.

This presumes that the data base is protected (as a collection, a work or a catalogue). If the data base is not protected through copyright or related law, it will be a matter for the national law on unfair competition whether such large-scale downloading is permitted or not. According to Nordic law, it would seem doubtful whether this was permitted if the purpose of the downloader is to profit from the act. Otherwise (if the purpose is to have the data base accessible for personal professional use), and the data base is not protected, it may probably be permitted.

8. Redistribution: The lack of local control

Copies of literary works acquired by a purchaser, may be subject to secondary distribution among the public. The legislation generally states that the copyright is exhausted after the first sale, making the operation of secondhand book shops and lending libraries not dependent upon the consent of the copyright holder. This license is generally limited to "published works".

As mentioned initially, data base publishing does not necessarily imply publication in the traditional sense, as physical copies are not necessarily produced. But over time the user will produce local copies in the form of printouts or machine-readable copies. Presuming that these copies are made with the consent of the copyright holder, the work will - after some time - be published. In contrast to the traditional situation, where publication is rather notorious in the production of a rather large edition of a work, it may, with respect to computerized systems, be a matter of evidence whether publication has taken place. But it will nevertheless probably be presumed that if the contrary is not proven, the work is to be considered as published through its inclusion in the computerized information system.¹⁷

The published copies can, therefore, according to the statutory provisions, be re-sold by the user. The qualification of "published copies" becomes rather subtle when applied to the situation under discussion. The qualification has to be based on which copies are produced with authority of the contract with the provider of the service. Generally, published copies will include local printouts,

17. In the pending proposal of the Norwegian copyright committee, an explicit provision defining a work as published when included in a computerized system has been put forward.

rintouts furnished by the provider through an off-line service and local machine-readable copies. It will not, however, include photocopies of the original printouts, or machine-readable copies of the original downloaded copy. Whether it will include local printouts based on the original downloaded machine-readable copy is doubtful: Obviously, if the user is permitted to make a local machine-readable copy, the user should also be permitted to make local printouts based on these, but whether these are to be considered as published copies, may be doubtful.

This demonstrates that it may be difficult to qualify what are published copies with respect to a computerized information system. But the published copies may be passed on to a third party without the consent of the copyright holder. However, the provider may through the subscription contract limit the user's freedom to pass on the published copies to a third party. This would be similar to limiting the declarative provisions of the statute through contract, and would imply that the contract was explicit in this respect, and that the user really has accepted the terms.

Legally, this escape from the control of the provider may be contained. But it is rather obvious that it would be extremely difficult in practice to enforce such a provision. With respect to traditional copies, there is a clear difference between a published book or a paper from a journal and a photocopy of the same book or paper: It is evident in the appearance of the photocopy. For photocopies of printouts the same would apply - they also would in practice bear the tell-tale signs of the photocopier, though to a lesser extent, as paper format etc would be the same as for the copier. But there would be no differences between the local machine-readable copy published by downloading, and a copy produced locally. In practice the possibility of enforcing a limitation of the right to pass on individual copies to a third party would be minimal.

We have also pointed out above that there could be a limited license, derived from statutory provisions, to produce private copies of material published through the computerized system. The private copies are themselves not published, and may not be passed on to a third party. The same practical difficulties of enforcing these limitations would be present.

This is further complicated by the statutory license given in some jurisdictions to produce photocopies within the educational system. In the Nordic countries, license constructions have been introduced which make it possible for the educational institutions to make photocopies of published works without the consent of the copyright holder if a blanket agreement has been negotiated with a

collecting society representing the copyright holders (authors, publishers etc).¹⁸ If local printouts are produced, and these are considered published copies of the work, the license would apply. It is quite doubtful whether a subscription contract between the educational institution in question should be given priority over this statutory license and the associated blanket agreement. In this way, a new escape from control of the providers is opened up.

The contractual systems operated by the reprographical collecting societies have mainly been limited to educational institutions, but are being extended also to public administration (a blanket agreement for Norwegian public administration has been negotiated by the Norwegian reprographical society, Kopinor) and private institutions. Consequently, this escape is enlarged.

Above, the license based on statutory provisions and blanket agreements negotiated with reprographical collecting societies is described as an "escape" of the control imposed by the contractual arrangement between the parties. This is not a wholly appropriate way of considering these type of systems. It may be correct that they create disturbances in the *formal* control flowing from the contract, but as we have emphasized, this formal control may in practice be very difficult to enforce. In such a situation, the reprographical society will be able to extend a *practical* control of the use of reprography in the relevant organization, which obviously would be of profit to the copyright holders.

This type of collecting societies are, traditionally, by law or by their very charters limited to the production of copies by photocopiers or similar reproduction equipment. As has emerged from the discussion above, computerized systems may replace the function of the photocopiers. An emerging development could be the likelihood of the reprographical societies being given an extension of their activities in order to control this secondary copying by computer equipment. This would be even more appropriate as the two technologies at the moment are merging - laser printers which also function as photocopiers are already at the market.

So far we have only discussed the secondary redistribution on local initiative, of copies of works published through computerized systems. This is th

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18. These systems may rest on different legal basis. Above we have presumed that the system rests on a statutory provision combined with a blanket agreement. It may, however, have a different legal basis, for instance individual agreements of representations with the different copyright holders, as has the Copyright Clearance Center of the United States.

core of the problem addressed in this paper. But considering the situation of the end-user organization, it would be appropriate to make a few comments upon other uses of local computerized systems for secondary redistribution.

Our presumption is still that the user has purchased a published copy of the work, but not by downloading from a computerized system. The initial copy available to the user will therefore not be in a computerized form. One should, however, take into consideration that the user may convert the document into machine-readable form at his own expense and for his own use.

The conversion may involve the task of recording the document by re-keying the text. But scanners (optical readers) are available today for use in connection to end-user equipment, which make the conversion rather easy. The reason for making the document available locally in such a form may be several. Two reasons should be mentioned: The user may want to have the document available for re-use, for instance inclusion in a document created by the user. Or the user may want to include the document in a local data base, either for strictly local use - or for communication within his organization. This latter example seems to be of increasing importance. Multinational corporations may, for instance, create data bases with newspaper clippings, extracts from trade journals, technical and scientific papers etc, and make this information available throughout the world-wide organization via their corporate network.

A machine-readable copy of a paper document cannot legally be created without the consent of the copyright holder.¹⁹ But, as emphasized above, the possibility for enforcing the legal rights are quite limited. The lesson from the introduction of photocopying is that the availability of a convenient technical solution to a need will favor the use of the technology for satisfying the need, notwithstanding limitations in copyright law. In order to also bring this local use and redistribution under some sort of control regime, it would seem probable that the existing reprographical societies (or similar collecting societies) have an important task.

In this survey of the situation in the organization of the end-user, we have emphasized the legal and practical limitations of a control flowing from contractual provisions and law. We have argued that the solution for establishing control of the situation by copyright holders, and have payments from the use of copyrighted documents, would presume a solution similar to the emerging solution with respect to traditional photo copying, pivoting on collecting societies.

. The exception of copying for private use has no practical application in the situation sketched above.

9. Moral rights: Erosion by technology

Above, we have seen that the end user will bring documents into his local system in machine-readable form, either by downloading or (as briefly discussed above) by converting the document himself. In this situation, the re-use of the document becomes quite tempting. Whether re-use is permitted or not, relies on the subscription contract and the relevant statutory provisions. This also has been discussed above. In this section, we shall examine some probable consequences of local re-use.

Obviously, the document may be included in the document authored by the user, either as a quotation or as an appendix. A loyal use would imply that the included document was given a full citation, and that the name of the author appears in its customary place. A loyal use would not give rise to any other problems with respect to the moral rights than those already realized within traditional technology.

However, the availability of the document in the computerized environment certainly would make it tempting for the user to impress his own personality on the document. A paper downloaded from a data base of scholarly journals may be brought under control of the word processing system of the user. It could be directly incorporated in the document prepared by the user without mentioning the original author's name or the source. It may also be "massaged" by the word processor - the "replace"-function of the word processor may be used to replace certain terms or phrases by those more appropriate for the user, amendments (supplements or deletions) could be made to suit the purpose of the user, etc.

Though this possibility is present in traditional systems, such exploitation would presume re-keying of the whole document. In this new situation, a "customizing" of a downloaded document would be easy and -certainly - in many situations tempting.

It would therefore seem probable that the new situation represents a challenge to the moral rights of the original author. The individual author would have grave problems in enforcing such moral rights. Therefore this challenge may be seen as an additional argument for bringing a collecting society representing the copyright holders into a contractual relationship with organizations, using the resources of the society to inspect the use of documents originating from data bases or entered into local data bases by the user, and ensuring that the use is loyal and respects the moral rights of the authors.

10. Publishing of disks: An alternative distribution system

In this paper we have mostly kept within our original frame of reference: A data base made available through the telecommunication network. This is the current typical example of data base publishing.

Recently, however, a new form of electronic publishing has appeared on the marketplace. Large volumes of data can be stored on compact disks (or CD-ROMs). These may be published very much like ordinary books or grammophone records, and purchased over the counter by users. Examples of such publishing schemes have already emerged.²⁰

The practical aspects of such systems are very similar to those discussed in this paper. The operator of the data bases is eliminated, as the distribution system will correspond more closely to the traditional system for distribution of paper copies. This in turn will have an effect on the pricing schemes, both of the payments of the authors and the end users, which may be more similar to those discussed in this paper for central information services. But the problems of local use and re-use, and the problems of controlling secondary diffusion from the user, will be the same as those discussed above.

This is just one example of how electronic publishing is still in its infancy. We are still not able to grasp the full potential of this new form of distribution and utilization of information, and have still much to learn in how the different forms of "electronic publishing" will interact with each other (especially the

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0. For instance, Grolier Electronic Publishing (Danbury, Connecticut) has released their *Electronic Encyclopedia*, a 20 volume encyclopedia (250 000 pages) on a set of CD-ROMs at a price of \$ 199. Datex (Woburn, Massachusetts) has released a data base with detailed information of 10 000 US companies and 700 trade journals on a set of four CD-ROMs, including monthly updates (the annual cost of this service is \$ 19 600). West Publishing Company, the largest US legal publisher, has announced a joint venture with Wang Laboratories, and it is rumored that the whole of the case reporter *2nd Federal Supplement* will be available on compact disks (including a customized retrieval system for PCs) next year. The latter system also offers a user gateway which automatically will establish on-line communication with central legal data bases for up-dates and supplement.

balance to be struck between local, in-house services and central data base services) and traditional forms of publishing. We also have not experienced the impact it may have on the situation of authors, publishers and other actors basing their position in the market on copyright law. We can see, however, that this is a challenge to copyright law, which eventually will lead to its development both on the national and international level.²¹ And in this development, it is also possible to see an active and an essential role for the reprographical collecting societies and similar organizations, which quite recently have arrived at a stage already set by the older information technology: the photocopier.

Computers are to photocopiers what gasoline motors are to steam engines - challenging both drivers and vehicles to reach new standards of performance.

21. WIPO/UNESCO in 1983 passed a recommendation for settlement of copyright problems arising from the use of computer systems for access to or the creation of works.

PUBLISHING OF COMPUTER PROGRAMS

11. Introduction: Publishing of computer programs

During the last 15 years, computer programs have become commonly recognized as *copyrighted works*. The breakthrough came in 1980 when US amended its recent copyright act of 1976 to explicitly include computer programs. Since then the copyright statutes of France, Germany and United Kingdom have also been amended. The Australian Act was amended to make the copyright protection of computer programs explicit, but this amendment is of a temporary nature and will be reconsidered in the current revision of the copyright law.²² In addition to the countries which have amended the legislation, a number of other countries recognize copyright in computer programs, and amendments to existing copyright legislation are in different stages of draft.²³

Computer programs are generally seen as a type of *literary works* and this is often explicitly stated in the amended legislation. This implies that all provisions of the copyright legislation applying to literary works also apply to computer programs where not otherwise stated.

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2. The amendment was prompted by an Australian court case (the Wombat Case), which threw some doubt over whether the copyright legislation was applicable to computer programs. This doubt had an adverse effect on the industry, and to remove the doubt, an amendment was effected.
 3. This is also true for the Scandinavian countries, where the Copyright Commissions of Denmark, Norway and Sweden have reported and proposed amendments in the legislation. Finland is about to propose similar amendments, and the Scandinavian countries closely coordinate their legislative efforts in this respect.

It is quite easy to see important differences between computer programs and traditional literary works. But one should consider that scientific works generally are a type of literary work, and also that a number of descriptive works - like for instance a technical drawing - are considered to be a type of literary work in the terminology of copyright legislation, though this may seem somewhat foreign to the common meaning of the word. The point is that a number of works whose value mainly is of industrial or technical nature are already protected by copyright legislation. Computer programs fit in with these categories of work, but it should nevertheless be recognized that their inclusion vastly emphasizes "*industrial copyright*" compared to the traditional "*artistic copyright*". As we shall see, this also has some implications for the publishing of programs.

Copyright gives a protection which is limited to the *form* of the work. It is - as the term implies - a protection with respect to *copying*, ie the unauthorized production of something which looks identical or similar. This should be contrasted to a protection of *content*, which copyright does not offer. In the context of this paper, it is quite important to emphasize this limitation of copyright protection. With respect to computer programs, the value is often related to the algorithms and innovating design of the program. Copyright protects the representation of the algorithms and ideas in the programming language of the program, but does not protect the algorithms and ideas as such. This is one of the main reasons why several critics allege that copyright is an inadequate form of protection.

In the context of this paper, it is not necessary to explore the limits of copyright protection. It must suffice to indicate these limitations, and to emphasize that, with respect to publication, it is the exclusive right of the copyright holder to produce copies of the work. For a publishing house, it is the reproduction right which is essential, ie the right of the publisher to produce copies of the program and offer these copies to the public, and the right to prohibit anyone else to produce unauthorized copies of the work.

In principle, the publishing of a program is quite similar to the publishing of a book.

The original creator is the author of the program, the programmer. Copyright will arise on the hand of the creator without any formalities in those countries part of the Berne union. All European countries, as well as Australia and Japan, are members of the Berne union. The important exception is the US, where copyright presumes formalities, generally the registration of the work with the US Copyright Office. In this paper, the exceptions for US will not be discussed in detail.

A practical difference between traditional literary works, like novels, and programs, is that programs frequently are created by more than one person. In this respect programs are more akin to text-books or other books used in education. The publisher should be aware of this situation, and accommodate provisions to regulate the relation between the members of the team in the contract. This will be briefly discussed below.

The publisher acquires the publishing rights to the program through a contract with the programmer. This contract is typically an explicit *publishing contract*, which awards the publisher an exclusive license - within specified limitations - to reproduce the program and offer the resulting copies to the public. Below, some of the characteristics of this publishing contract will be discussed.

Originally a program is coded in a high level programming language - examples of such languages are BASIC, PASCAL, FORTRAN, SIMULA etc. These languages are designed to be unambiguous in syntax on one hand (consequently a computer is able to interpret the statements) and on the other hand sufficiently close to natural language that a human being is able to use the language with some ease. This version of the program is generally known as a *source program*. To run the program on a computer, the statements in high level language have to be transformed to statements in the machine code of the computer. To do this, programs are generally *compiled*, ie processed by special programs governing such transformations. The resulting version of the program is known as the *object program*.²⁴

An important difference between the source and object version is that the object version cannot easily be understood or read by a human being. Reading an object version is like reading long columns of numbers. It is therefore difficult to

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24. For some purposes, the computer uses programs known as *interpreters* rather than compilers. The program is accessed in the source version, but each time a statement - or set of statements - are to be used, the source code is interpreted into object code which resides in the computer for the duration of the processing (which may be very brief, indeed, and appropriately measured in fractions of seconds). When the processing is done, the object version is discarded. If the same statement - or set of statements - are to be used again, the computer will interpret them once more. This technique is useful for many purposes, for instance when a program is self modifying at run time. But the type of published programs discussed in this paper will generally be compiled and put on the market in an object version, as discussed in the text above.

make amendments in object programs, and difficult to understand which algorithms or sequence of statements are used in the program. As mentioned above, the value of the program is often related to the algorithms and other ideas. By making only object versions of programs available, some protection of the ideas is achieved.

The publisher is not always given access to the source code, but only given a right to publish the program in object code. This may be a way of protecting the competitive position of the programmer with respect to the publisher, but it also creates new problems for the publisher - who has an interest in maintaining the program (in order to, for instance, correct errors) or further develop the program (for instance make adjustments with respect to new computers). Regulating the access to the source code, and securing the possibility to maintain the quality and functionality of the program, should be addressed in the publishing contract. These are elements of a publishing contract which have no counterpart in a traditional book publishing contract, and this aspect will be discussed below.²⁵

The program is published by reproduction. Reproducing a program is easy - any computer is necessarily also a copier. The copying of programs is by itself one of the problems the publisher has with respect to users - unauthorized copying may have a serious adverse effect on the market. This will also be discussed below.

Books are generally reproduced in rather large editions at the same time. This is also often the case with respect to programs, especially programs for the typical consumer market. But it is not necessarily true - the publisher may opt for a strategy of publishing on demand. The concept of an edition vanishes, and is replaced by a reproduction of one copy or a few copies at a time.

This actually implies that there are a number of different publishing situations for programs. A few of these shall be mentioned.

Whether a program is *published*, is qualified by the copyright legislation. The Berne convention has a definition of published work (art 3(3)):

"The expression 'published work' means work published with the consent of their authors, whatever may be the means of manufacture of the copies,

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25. Publishers of text books or similar standard works may bind them selves contractually to produce up-dates at regular intervals. This is related to, but not identical to, the form of maintenance necessary of a published program. Removing bugs from the program has no analog in traditional publishing.

provided that the availability of such copies has been such as to satisfy the reasonable requirements of the public, having regard to the nature of the work."

One notices that there exists no requirement of a minimum number of copies necessary to qualify the work as published, and neither is there a requirement that the copies should be produced at the same time. One, therefore, may have a situation where it may be doubtful whether a program is published.

One of the typical situations of published programs is that where the programs are sold one by one, often based on detailed negotiations with a customer. The relationship between "the publisher" and the user is governed by a contract which specifies warranties, maintenance obligations etc.²⁶ This program has never been subject to traditional publication - a distribution of single copies has taken place over time, resulting in the program being available to the public in the long run, so to speak. This will be typical of the situation with respect to many mainframe computer programs, but it is not the situation discussed in this paper.

The other typical situation is the production of a number of copies at the same time, which are distributed to the public through retailers or through the mail. Such programs typically aim at the market of micro computers or the consumer market. In this paper, it is this situation which is addressed.

It should be stressed that even when an edition of the program is produced, a considerable on-demand publication may also take place. This may be especially important with respect to updates of the program: Copies in which identified errors have been corrected or enhancements made. A program is generally distributed in versions - which often is identified by a decimal number after the name of the program - and several versions may be in the market at the same time. A user of the program may register with the publisher in order to secure information on new releases, and be given the possibility of purchasing

26. Although detailed discussion of this point is beyond the scope of this paper, it is interesting to note that this form of contractual relationship may be important in those cases where one seeks to establish the liability for damages arising from the use of a computer program, since the law may sometimes regulate such relationships under the doctrine of the provision of services rather than that of the provision of goods. The implications of a publisher being a provider of services rather than a manufacturer of goods fall outside the scope of this paper, but should be considered by a publisher.

them. This may also be a valuable strategy in the protection of the program, and we will return to this later.

In the computer, a program generally is represented as patterns on a magnetic storage device like a disk or a magnetic tape. When used, the programs are copied from the storage device into the central processing unit of the computer, where it resides temporarily until the job is done. The program is then erased in the CPU, and if needed once more, is again copied from the storage device.

To trade in computer programs, it is not strictly necessary to represent them on a physical medium. One may connect two computers by a telecommunication link, and transmit the program as a series of signals from one computer to the other. The transmission would result in a copy being created in the receiving computer, which may be accessed in the usual way. This would therefore constitute publishing - the distribution of copies - in spite of no physical item being traded. In this respect the publishing of programs would be similar to data base publishing of traditional literary works like newspaper articles. There are also examples of data bases with programs being established, and from which subscribers may acquire programs. In this paper we will not, however, address this form of publishing.

Usually, the publisher sells the program represented on a physical device. For the micro computer market, this device typically is a diskette, a flexible magnetic disk. For the lower range of the market, programs are also sold on cassettes. The programs may be run from the storage device, but for professional micro computers, they will generally have the capability of allowing the program to be copied onto a hard disk. This implies that the storage devices cannot have hardware protection mechanisms which make such copying impossible, as this would not be acceptable for efficient use. There are also a number of different standards for these storage devices, and one of the compatibility issues is the physical size and the layout of the device.

For the consumer market, programs may also be sold embedded in integrated circuits in cartridges or similar devices. These slot into a computer, and may then be run. Such devices are generally not designed to be copied, but only to be run on a specially designed computer. Video games are frequently sold in this way. But one may also find programs stored in integrated circuits which are parts of all sorts of consumer products - cars, stereo equipment, washing machines etc. This paper will not address the special issues that this type of publishing creates.

After this preliminary discussion of the various modes of publishing of computer programs, we are able to indicate those aspects on which attention will

focus in this paper. We shall address those situations where one or several authors give a publishing house the exclusive right to publish their program through some sort of contract. The program may be published in source or object version, represented on a diskette or similar storage device. It is sold through stores across the counter or through the mail, in much the same way as books are sold. The programs are designed for the micro computer market. We are not concerned with the higher end of the market, where direct negotiations between vendor and purchaser take place and an individual contract is concluded. Neither are we concerned with the very lowest end of the market, the sale of video games or similar programs clearly aimed at the consumer market, and therefore activating the special provisions which the legislation of many countries contains to protect consumers. And finally we are not concerned with programs which are integrated in consumer goods.

Though limited, our discussion will address issues relevant to the situations typical of publication, and also be relevant for to a discussion of other situations - although in the latter case one would there have to take into account those ways in which the characteristics of that situation are different from the typical situation discussed in this paper.

12. The publishing contract: The issue of control

12.1 Maintenance

As already indicated, computer programs are different from traditional types of literary works. One cannot directly adapt the publishing contracts used for novels or text-books to the publishing of computer programs.

One essential problem is that of maintenance. Programs of any complexity are bound to have errors. It is taken for granted that the publisher, when acquiring the program, has subjected it to extensive testing and is satisfied that the quality is acceptable. It should be noted that this aspect is part of the risk run by the publisher - it is generally accepted that no program is free of errors, only testing can demonstrate whether the errors are of a kind which do not interfere with the usual operations of a program. This implies that the publisher requires competence in the testing of programs, either within the publisher's own organization or by bringing in consultants.

When the program is marketed, one will start receiving reports on errors disclosed through the use of the program. The publisher should encourage such

reports, and should have facilities for collecting them. This will be useful for preparing a new release of the program.

Generally a new release is not triggered from a mere correction of errors, but from the need for new features in the program. This may be functional features, or it may be the adaptation of the program to new types of computers, integration with or interfaces to other programs etc. Such maintenance of the program may be necessary to win acceptance for the program in the market place - purchasers expect that the publisher will offer maintenance and thereby some sort of security for the continuous use of the program in the face of the rapidly changing conditions in this area. This does not necessarily imply - and rarely does, where this type of program is concerned - a legal warranty for continued maintenance, but something related to the reputation and past track record of the publisher. It should perhaps be emphasized that the proven ability to respond to user needs arising from introduction of new computers etc, is one of the most important elements for the reputation of a publisher, and one of the most essential selling arguments for the products of the publisher.

The preparation of a new release may be seen as the publishing of a new edition. It presumes access to the source code, and it presumes a qualified programmer. This programmer has to have a thorough knowledge of the original program in order to make the appropriate amendments fit into the existing structure and not cause new errors to appear.

Obviously the original programmer - the author - is normally the person best suited for this job. This implies that the publishing contract should have clauses which make it possible for the publisher to require the continued assistance of the author. In this respect, the contract has to be drafted in much the same way as a contract for a text book in a field which requires frequent revisions.

However, there may be numerous causes for the programmer not being available for such a revision. The reason may be that he has prior engagements which leave him without the necessary time to do the work, or he may have deceased. In a situation where the original programmer is unwilling or unable to do the necessary revisions, the contract should have clauses making it possible for the publisher to seek the assistance of a third party.

Such clauses should be drafted with care. From the point of view of the publisher, it is necessary that the economic exploitation of the work should not be restricted by the lack of cooperation from the original author. But without a clause explicitly regulating recourse to a third party, it may be difficult to interpret the contract in such a way that the publisher is able to employ an outside person for the new version. In this case the publisher has to let the

marketing of the work lapse, or meet the conditions set by the original author, conditions which the publisher may find less than fair.

The clause may set a time limit by which the author has to enter into binding contract on the revision work, and this latter contract would then lay out specific regulation of the revision. If the author cannot cooperate, the publisher should have the right to bring in another programmer. From the point of view of the original author, the original author has to protect his or her reputation related to the program, and the contract will therefore generally require that the new programmer brought in, has sufficient knowledge and experience to guarantee the continued quality of the program. The practical difficulties in implementing such a scheme, are self-evident. It would perhaps be advisable to introduce some sort of authorization scheme, by which the original author was given the right to suggest which programmer should be invited to assist in the revision, or authorize the choice made by the publisher.

The original author also has economic interests in the program. We will return to the question of payment below. We presume, however, that the programmer is paid according to a scheme different from a flat one time payment (in which case the problems discussed in the following paragraphs do not arise), but rather according to, for instance, some sort of royalty scheme.

At this point we should note that the publisher should scarcely be free to negotiate payment with the new person brought in, if the payment of this person is deducted from the payments to the original author. On the other hand, the publisher cannot be expected to pay the new person in addition to the original author without some sort of deduction. This issue should be regulated in the contract. Several strategies are used - the original author may have a guaranteed minimum payment, regardless of how much work others carry out on the program. There may be a reduction of the payment over time, at the end of which the original author is paid off etc.

Finally, the original author will retain an interest in having his or her name associated with the program. As the program goes through a number of revisions, little may be left of the original coding. The new person (or persons) brought in also has a right to be named. The contract should therefore govern how this is to be regulated - perhaps the documentation associated with the program should have included a product history. One should also note that the customs of naming programmers are somewhat different from those of naming authors of traditional literary works. Programs are - to a certain extent - more anonymous works, though there seems to be a clear tendency of associating the name of the original programmer with the program.

If the program is revised by somebody else than the original author, a contract has also to be negotiated also with this person. The revised work will have two authors, and with respect to the next version, the same problems as discussed above may arise both with respect to the original and the new programmer. The revision contract should therefore also govern this situation, and the relations of the reviser both to the original author and a possible new reviser.

12.2 Escrow clauses

If the publisher has secured a right to maintain the program using a third party, the publisher also should make sure that the program is available in a form permitting maintenance. As mentioned, the version of the program published will often be in object code. The source code may remain with the author, for instance in order to protect the algorithms or tricks used to make a program work. If a third party is to make amendments in the program, this person has to have access to the source code.

The contract should therefore have clauses securing the access of the publisher or the publisher's representative to the source code. This is often achieved by an *escrow clause*, through which the current source code is deposited with an objective third party, for instance a bank.²⁷ By invoking the procedures prescribed by the contract, the publisher may gain access to this version - for instance if the program is to be amended or maintained by somebody else than the original author, and the original author is unable or unwilling to provide the source code of the current version.

It is recommended that if the source code is not made available directly to the publisher, an escrow clause or similar arrangement be set up in the contract to secure the justified interest of the publisher.

27. It has been suggested that that a collecting society also could have this function.

12.3 Limitations of the publishing license

As mentioned, the publishing contract is traditionally an exclusive license within specified limits. Obviously, the contract can be a simple rather than an exclusive license. The *obligation* to publish is traditionally implied by the exclusiveness of the licence. If the license is not exclusive, one would not expect the publisher to have an obligation, but only a permission, to publish.

But even when a publishing contract gives the publisher an exclusive licence, there will traditionally be limitations to the exclusiveness. For book publishing, the limitations are generally derived from language or geographical areas. Typically, the licence is given for a book in German for publishing in the Federal Republic of Germany, while the right to publish the book in any other language or in German outside the Federal Republic of Germany is retained by the copyright holder.

For computer programs, language or geographical areas are not as appropriate as for books. It may be meaningful for some programs to limit the license to a certain language like English or Norwegian - implying limitations for the language-sensitive elements of the program, which may be responses generated by the system, interpreters for user responses, dictionaries etc. Also geographical limitations may be meaningful. But computer programs are accepted in English versions to a much larger extent than books, and the market is also much more international by nature.

One might therefore look to other criteria for partitioning the market. Some such criteria may be mentioned.

One possibility would be to use the *programming language* as a criterion. This presumes that the identity of the program as a copyrighted work is retained through conversion from one language to another, for instance from BASIC to FORTRAN. This question is, however, disputed, but will not be pursued further in this context.²⁸ The different languages may have typically different areas of application, which may make such a division appropriate.

28. The UK amendment to the copyright legislation contains a provision to the effect that such a converted program is to be qualified as a derived work with respect to the original program.

A related criterion would be that of *operating systems*, one publisher may be limited to programs running under MS-DOS, another to programs running under UNIX. Again this may be appropriate.

And another criterion would be by the *type of computer* on which the program is to be installed - one publisher for instance being granted exclusive rights for IBM hardware, another for Digital Equipment hardware etc. This latter distinction would seem to presume that a program published for an IBM computer cannot be used by a DEC computer, and this presumption is not true. But some publishers may want to acquire a licence to integrate the program into a working environment which has a hardware dependency - and in such cases it may be appropriate to use the type of computer as a criterion in defining the limits of the exclusive licence of the publisher.

It is also quite usual to contract for a limited period of time. After the lapse of a certain period, the publisher has to re-negotiate the licence. The reason for such a practice, is generally that both author and publisher have a better possibility of taking into account the popularity and potential of a program after it has been tested for some time in the market place. The period would typically be some years, and the lapse of the licence is also often combined with an option for the publisher to contract for another period, subject to agreement on the economic conditions. Where an explicit time limitation is not stipulated, a publishing contract is generally interpreted to be awarded for the duration of period in which the work (the program) is protected.

For book publishing, a contract would, according to Norwegian law for example, be interpreted to contain limitations in the exclusive license even if such limitations were not explicitly stated.²⁹ It is doubtful if this rule of the thumb applies to the publishing of computer programs. The structure and practices of the two fields are different, and it may well be that a publishing contract for computer programs without explicit limitations will be interpreted to be general and universal.

29. Obviously, different legal systems have different doctrines on the interpretation of contracts. Many legal systems would not allow the same form of supplementing a contract with trade practices as generally done in Norwegian and Scandinavian law.

12.4 Payment

One of the essential elements in a publishing contract, is the payment to the author. In book publishing, traditions vary between countries as to how an author is paid. In the Scandinavian countries, the payment is regulated by general agreements between publisher and author, and is based on royalty, but combined with a guaranteed minimum payment at the time of contracting or publishing.

Two principles are important from the perspective of the author or programmer. One is that the payment should be made as close in time to the actual work as possible, the second that payment should be related to the use made of the programs.

To which degree the programmer is able to have the payment in or close to the period of programming, depends upon his or her contractual relation to the publisher. If the contract is concluded *before* the work actually starts, it would be possible to have lump sum payments during the period of programming. Such payment is generally - at least to a certain extent - deducted from later sales related payment. One should be aware of the possibility of the contractual relation to the publisher being transformed into an employment contract, or a development contract. In these two latter cases, the publisher would pay for the time used to develop the program, and acquire the necessary copyright to market the program without further sales related payments. The balance between payments at the period of work and sales related payments should be struck taking into consideration the needs of the programmer in question. As a rule of thumb, the greater the payment prior to publishing, the less the sales related payments.

There are different forms of sales related payments. For books, the typical payment is *royalty of the sales*. Traditionally, this was developed in a situation where the publisher could determine the price at the retailer's. In most countries, the publishers are not able to do this, but only recommend a price. The royalty basis would then be the retail price paid by the outlets to the publisher rather than the actual price to the customer. If the wholesale rather than the retail price is the royalty basis, the royalty tariff has to be relatively higher.

Another form of sales related payment is a percentage of net profit. The contract defines how net profit is to be calculated - generally the actual payments made by retailers to the publisher, minus distribution costs, losses due to non-payments or destruction of copies etc. If this form is chosen, the percentage of net profit should also be higher than the royalty tariff.

The royalty tariff of books - varying from approximately 5 to 22,5 per cent - is not an appropriate comparison for determining the tariff for programs. Books are costly to reproduce and store, programs have a completely different profile from the point of view of their production costs. However, an appropriate tariff is not suggested, since there exists insufficient trade practice on which to base recommendations.

The programmer should be aware of the practice of extending liberal discounts within the trade in computer soft- and hardware. The contract should include provisions limiting the freedom of the publisher to grant discounts, at least with an effect on the payment to the author. If payment is calculated as a fraction of net income, it is quite easy to see that discounts will reduce net income and, consequently, the payment to programmers. It may be appropriate, therefore, to introduce some bond between the official price of the program and the payment to the author.

12.5 Documentation

In this section, we have discussed a few points relating to the contract between a programmer and publisher with respect to the program. One should, however, take into account that any program will be published with *documentation*. Documentation is a form of literature, actually a sub-category of non-fiction. It is governed by the rules of traditional literary works.

The relation between the program and the documentation should be considered. If the programmer is also the author of the documentation, few problems arise. The publisher may want to make provisions for revising the documentation with the help of a third party, as the ability to explain a program and write clear prose is not necessarily part of the abilities of a programmer.

For this latter reason, the publisher may wish to bring in an author for the program documentation. In this case, a special contract for the documentation may be negotiated between the author and the publisher. Generally, the programmer has to be brought into this contract in one way or the other - at least as a consultant to the author. The programmer should consider what effect this extra effort should have on payment etc.

Also, both the publisher and the programmer would need to coordinate the publishing licence to the program and the documentation. Programs without documentation is awkward to market, and the link between the two works may have decisive implications on the freedom of the programmer - or the publisher - to re-negotiate contracts, extend a licence to new areas etc.

One should, in passing, note that documentation in itself may be a valuable work for publishers. Third parties may publish documentation to popular programs. Generally it would not be an infringement of the copyright in a program to publish an independent documentation on how to use the program - and there exists such independent documentation for many popular program.

In relation to this, one may note that one of the possibilities of controlling the market is through the documentation. A complex program is difficult to use without access to the documentation, and control of the documentation - with respect to copying for instance - may be easier to enforce than control of the program. This possibility may perhaps be better exploited by publishers than being done today. This also implies that the publication of documentation by a third party may have adverse effects on the practical possibilities of controlling the program.

13. The purchase: Control across the counter

13.1 Copyright notice

We will not discuss the contractual relationship between the retailers and the publisher, but concentrate on the purchase of a program by a user.

As stated, the programs are subject to copyright. In countries members of the Berne Union, no formalities are required to achieve protection. Outside the Berne Union, national legislation may require formalities. As mentioned initially, the important example is the US, where national legislation requires registration at the Copyright Office. The US is, however, member of the Universal Copyright Convention, to which most Berne countries also are parties. The UCC has a provision that obliges a country to extend copyright protection to foreign works even when national formalities are not met provided that the copies of the work bear a *copyright notice*. This copyright notice is the familiar capital C within a circle, optionally preceded by the word "copyright", and followed by the year of first publication and the name of the copyright holder.

It should be emphasized that one must strictly adhere to this formula. If it is not followed, the notice may be declared void by US courts, and the program will be unprotected. The letter C should be a capital letter. It should be inscribed into a circle, or - if this is not possible due to the character set available - into rounded parenthesis: (C). The year should be the year of the first publication. If later amended, the year should still be the year of first publication - one should

not add one or more years. As the tradition of many European countries are different from that of the US, copyright may be transferred to the publisher as a different set of functions than the set which in US law is understood as "copyright". Copyright in this sense is commonly shared between the original author and the publisher, and it may be a matter of dispute which of them most appropriately should be identified as the copyright holder. In the notice, however, only one name should appear - and many recommend for legal and practical reasons that this should be the name of the publisher. And, finally, the notice should be exhibited clearly and not embedded in other text (for instance the address of the publisher).

Each copy of the program has to bear a notice. This implies that each diskette (preferably on the label) should bear a notice. It also implies that the notice should be part of the program listing, and that it would be wise to include the notice on the "title screen" of the program. Also, if a contract with the purchaser is negotiated, the purchaser should be obliged to reproduce the notice on every copy made of the program, for back-up or other legal purposes.

For books and other traditional works, copyright notices are often given an inappropriate form, making their validity dubious. This is not, perhaps, critical, as the market for books is strongly governed by languages, and a Norwegian - or even a French or a German - novel has only a small potential market in the US. The market of computer programs is much more international, and the copyright notice will be correspondingly more critical.

Publishers should also be aware of the possibility of liability to the author for economic loss due to an incorrect copyright notice.

13.2 Shrink-wrap licensing

For mainframe programs there is generally negotiated a rather detailed contract regulating the duties and obligations of both parties. A program published for the mass market, available on diskettes or cartridges, is sold across the counter in much the same way as a book is sold. There is no occasion for negotiating a contract. The contractual procedure is eroded to a simple purchase.

Many publishers have, however, felt a need for more careful regulation of the duties of the purchaser. This has to some extent been a reflex of insufficient copyright legislation, a situation currently being repaired. The publisher would, for instance, like to reduce the right flowing from the statutory license for private copying by a prohibition, or the right to resell the program to a third party

without the intervention of the publisher, or otherwise restrict the rights of the purchaser compared to what would flow from the default rules of the copyright legislation.

Several strategies have been tried to achieve this more detailed regulation. A popular strategy is what has become known as *shrink-wrap licensing*. This name is derived from the fact that published programs often are sold packaged in plastic which has been shrink-wrapped around the set of diskettes. The outside of the package has a label listing certain conditions, and informing the user that by breaking the plastic, these conditions are considered as accepted. The shrink-wrap licensing is an attempt to make the breaking of the sealed package a conclusive act which triggers off a contractual relationship between the publisher and the purchaser, a relationship into which the stated conditions are incorporated.

According to Scandinavian legal theory, such a procedure is insufficient to establish a valid contract between the purchaser and the publisher. The argument is that by accepting shrink-wrap licenses, the legislator would accept that anybody could "label" themselves away from the legislation. Though many provisions in the copyright Act may be set aside in a contract, a standard clause issued by one of the parties and printed on the copies of the work, is insufficient to constitute an agreement between the parties. This view seems to be shared in most European jurisdictions.³⁰

This implies that the publisher generally has to accept the default provisions of the copyright legislation, and adjust market strategies etc to this background.

It may, however, be possible to achieve a contract which would be accepted by the courts as valid. Some publishers provide a contract form which is to be completed and returned to the publisher. If the form is not returned, the default rules will apply. The publisher will, however, not furnish updates of the program to discount rates to others than those registered as licensees. Other advantages may also be offered to licensees (for instance product information), which make the purchaser inclined to return the form. In these cases there have been some sort of interaction between publisher and purchaser, which may be sufficient for a valid contractual relationship to be established.

30. One should note, however, that certain states in the US have enacted special legislation permitting shrink-wrap licensing, the first being Louisiana, where the "Software License Enforcement Act" was passed in July 1984.

13.3 Private copying

One of the real problems of controlling the distribution of computer programs, is the ease of copying. There are techniques for protecting a program against copying, but there may be many reasons for a publisher not to avail himself of such possibilities: It may make the use of the program difficult, for instance in copying the program down on a hard disk or in using the program on legitimate back-up computers.

If copying is possible, one will have a problem of *pirate copies* being produced by purchasers. Piracy is the illegal reproduction of copies, and the limits flow from contract (if there is a valid contract governing the relation between publisher and purchaser) or law. Different national legislations have - within the boundaries of the copyright conventions - different limits for legal reproduction. The continental European tradition permits typically the reproduction for *private use*.³¹ This is seen as a problem, especially by many foreign publishers operating on the European market.

The problem should, however, not be exaggerated. It is true that some jurisdictions - for instance Norway - will permit private copying for professional purposes, for instance the reproduction of a page from a text book by a lawyer who intends to cite the book in court, and finds it too cumbersome to bring the volume along. But this is nevertheless a very restricted license. It would not be permitted to copy a word processing program purchased for a personal computer at the office in order to install that program on the home computer for professional use. It might, perhaps, be permitted if the program at home only was used to write personal letters, or to study at leisure in the home for perfecting the understanding of the program.

It would therefore seem that for most categories the license to reproduce programs for private purposes only make a dent in the margins of the potential market. There are, of course, exceptions - the major exception being programs

31. Germany has in the 1985 amendments of its Copyright Act prohibited private copying of programs. The Swedish Copyright Commission has in its report also recommended a prohibition, but as the other Scandinavian commissions are retaining private copying of published programs, the coordination of the various national Scandinavian proposals may result in a reversal.

which mainly have a recreational purpose, for instance games. These are used for private purposes in the strict sense, and may therefore be copied for such purposes. Consequently the statutory license to make private copies may have a considerable impact on the market for such programs. But for those programs which are designed to support office work on micro computers, like spread-sheet or word processing programs, it is the piracy, not the private copying, which remains the major problem.

In one situation, however, the issue of private copying may be more acute. Studying is considered a private activity. The reproduction of works by a student on the student's individual initiative, will typically be an example of private copying. Educational institutions are a major market for many publishers of computer programs - educational software may include word processing programs, math programs, spread-sheet, data bases or text retrieval programs, compilers, etc.

In these cases, the publishers face a real problem in controlling the private copying. The students are themselves not party to the contract - even if a contract is negotiated with the purchaser, which would be the educational institution. The students have, however, legal access to the program, and may avail themselves of the statutory license to make private copies.

It should be noticed, however, that if the educational institution itself organizes or encourages the copying, it will no longer be an example of private copying. With respect to traditional reprography of literary works, there are many examples where the school has included works in the curriculum, made originals available with the advice to make copies, etc, and all these situations are seen as exceeding the statutory license for private copying. It is therefore presumed that the problem is restricted to those cases where the student takes a personal or an individual initiative.³²

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32. According to the Agreement on Photocopying of Material Protected by Copyright in Norwegian universities between the Ministry for Culture and Science and the collecting society Kopinor, a fee is to be paid for copying for students, or by the students themselves, using copiers in the educational institutions of material which the students are required to study. Copying is permitted when the material is not readily available in booksellers' or libraries. There are also other limitations. In the situation mentioned, the initiative is considered taken by the institution (teacher), even when the student is personally carrying out the actual copying.

If the publisher would try to address this issue, the best way may be through a *site licence* with the educational institution. This site license would govern the use of the publisher's program within the institution. It may have provisions governing data security, who are to be given access to programs, the license of the institution to reproduce the program, and other issues. It may also have provisions requiring the institution to obtain from each student a written confirmation where the student promises not to make copies. It may then be maintained that this confirmation is a contract between the student and the institution, which eliminates the right to make private copies. However, it may to some extent be doubtful whether such a confirmation really would be seen as a valid contract, as the student really is in no position to negotiate. Some of the same arguments as have been mentioned above with respect to shrink-wrap licensing may support this view.

13.4 Labelling schemes

As a supplemental strategy, the publisher should consider a *labeling* or otherwise clear identification of original diskettes. Experiences with respect to videograms have proved that an efficient strategy to prevent piracy is to give the videogram a color cover, which is more difficult to copy or imitate than the videogram itself. If a videogram is found without the original cover, this is a clear indication of the videogram being a copy. It *may* be a legal copy - but nevertheless this indication is helpful for enforcing the publisher's rights.

This possibility is not exploited effectively by program publishers. They should consider making distinctive diskette envelopes, and - perhaps more important - distinctive labels on the diskettes themselves. The lack of a such a label would be an indication of the diskette being a copy. Labels could also be made available under a site license to mark legal back-up copies etc. This would also partly help to secure that any copy had a formally correct copyright notice.

A site license could have clauses permitting the destruction of any unlabelled diskettes containing the program and found on the site. If effective, the number of labels made available to a site would also be some sort of indication of the use made of the program, and could be related to schedules for license fees. Possibilities to enforce limitations in a site licence combined with a labeling scheme, would seem to be promising. In addition would come the general good-will benefits in using a brand name, trade mark etc.

14. Liability of publishers

As mentioned above, any computer program of some complexity is bound to include errors. These errors may cause a program to malfunction in the sense that it does not operate according to specifications. This may make the purchaser want to pursue the matter in respect to the publisher.

The purchaser may want to have the error *corrected* free of charge. Only rarely the publisher will be obliged to correct the published program, this would then have to be related to some contractual obligations or published maintenance schemes in addition to a simple across the counter sale.

The purchaser may want to have the price refunded. This would have to be determined according to general law of contracts. As it is general knowledge that any program is bound to contain errors, the mere existence of an error is not sufficient. On the other hand, a word processing program not allowing deletion of recorded characters would obviously be useless, and the purchaser may have his money refunded (and may have access to other remedies, see below). Whether the sale is to be declared void, will have to rely on a general legal assessment whether the error is of a character which triggers the general contractual principles of declaring a transaction void. This will vary between jurisdictions, but as a general rule, the error has to be related to some essential or important function of the program.

The purchaser may also want to hold the publisher liable for economic loss flowing from the error. In a current US litigation, a purchaser of a spread-sheet program maintains that the program did not correct calculation when some figures were amended in a way which caused the purchaser to lose 250 000 \$ on a bid. The loss may also be related to reduced trade, loss of good-will, etc.

In general, such liability will only flow from either a contractual warranty or from negligence of the publisher. The publisher will hardly issue a warranty making him liable for economic loss caused by the use of the program. In practice, it will therefore be a question of negligence. Liability may in principle flow from negligence - for instance negligent testing of the program or negligent documentation promoting incorrect use of the program - but it is doubtful whether program publishers in practice will be found liable for such reasons. Book publishers are open to the same liability, but one is not aware of case law actually making them liable for economic loss caused by bad advice in a book.

Case law may, however, find sufficient differences between program and book publishing to apply the general principles in a different way. This still has to be seen.

One should also note that there is a question of evidence. An erroneous result may be caused by the program running on a non-standard computer, or by the user not following the procedures detailed in the documentation.³³ The problems of proving the cause of the incident may itself be an issue in the liability discussion.

33. In the US case briefly mentioned above, the program publisher maintains that the error was caused by inappropriate use of the program, rather than by the program itself.

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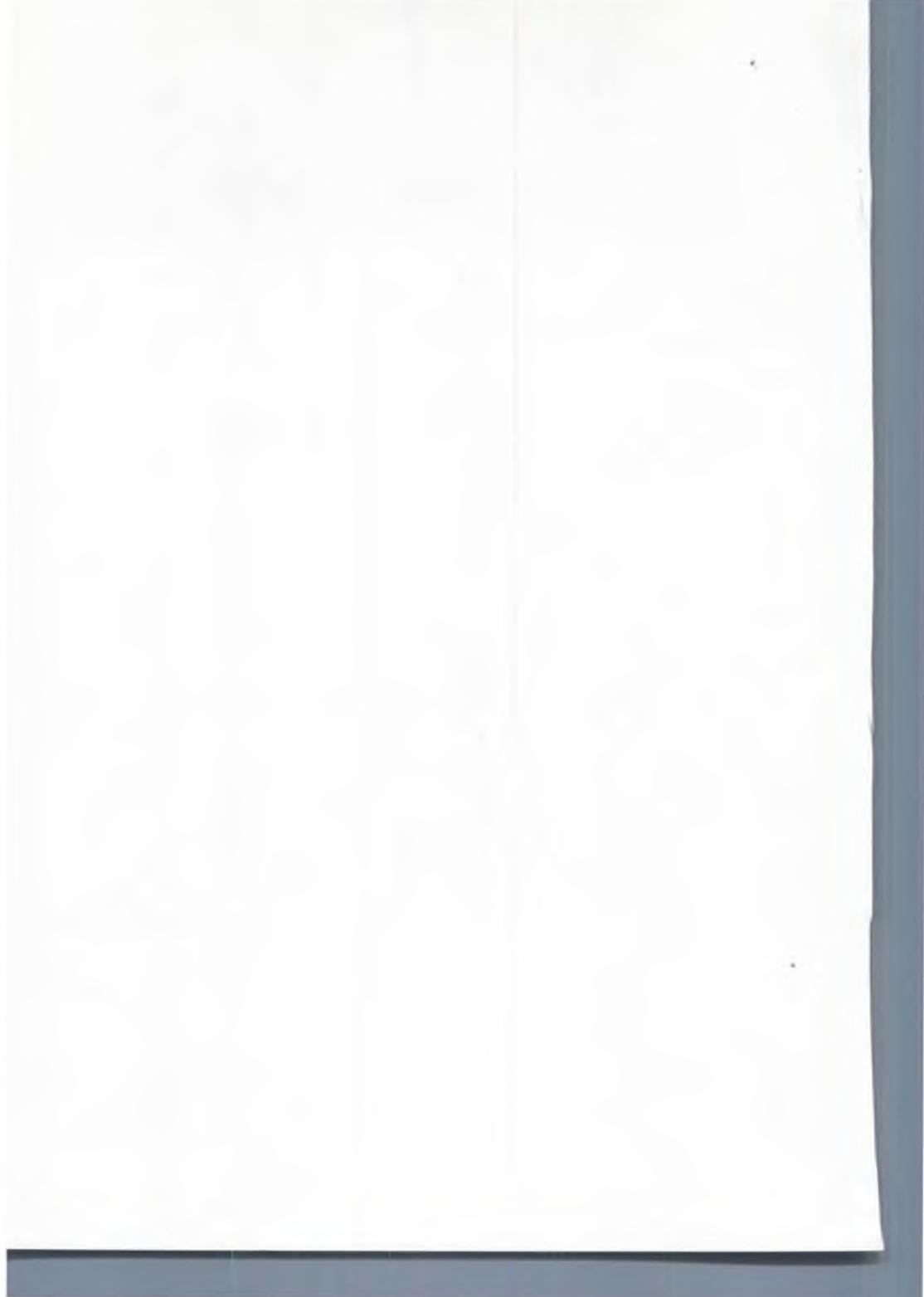
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