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EDI AS A WAY TO CONCLUDE CONTRACTS

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Abstract : The conclusion of contracts by electronic means raises legal problems which have to be identified and assessed. Under French and Belgian private law, those problems are connected with the law of evidence and can be easily solved.

OUTLINE

- Introduction
- Characteristics of new means of communication
  - 2.1. Degree of instantaneousness
  - 2.2. Quality of dialogue
  - 2.3. Security aspects
- What contracts may be concluded by electronic means ?
- Questions relating to consent
  - 4.1. Existence of consent
  - 4.2. Real will supersedes declared will
  - 4.3. Quality of consent
  - 4.4. Quality of consenting persons
  - 4.5. The notion of offer and acceptance
- Determination of location and moment of contracts
  - 5.1. Interest of the question
  - 5.2. Rules for determining the conclusion of contracts
    - 5.2.1. The declaration rule
    - 5.2.2. The expedition rule
    - 5.2.3. The reception rule
    - 5.2.4. The information rule
  - 5.3. International private law
- Questions relating to authentication
  - 6.1. The problems
  - 6.2. The notion of authentication
    - 6.2.1. Authentication in general
    - 6.2.2. Modern means of authentication
  - 6.3. Legal value of modern means of authentication
    - 6.3.1. The problems
    - 6.3.2. The case law answers
  - 6.4. Consequences of improper authentication
    - 6.4.1. Message alteration or loss
    - 6.4.2. Unauthorized message
- Conclusions

1. Introduction

This paper will examine the legal issues, under continental law, relating to the formation of international contracts concluded by electronic means.

Under continental law, a contract is generally considered to be formed when each party thereto has expressed its consent and each party is aware of the other's consent. In the event the parties are not physically present when concluding their contract but have instead used means of long-distance electronic communications in order to express their consent and to make it known to each other, various questions arise : When is the contract concluded ? Where is the contract concluded ? Can a contracting party be bound by a message sent by an unauthorized person ? Who is liable for an alteration or loss of the message during its transmission ?

This paper will attempt to answer these questions. It will also examine whether all types of contracts may be validly concluded by electronic means. It appears that the validity of certain types of contracts is subject to formalities which cannot be complied with in an electronic environment. Prior to examining the above-mentioned legal questions, this paper will briefly describe the characteristics of some new electronic communications means which can be used in order to conclude contracts.

2. Characteristics of new means of communications (*)

From the legal point of view, with regard to contract formation, the new means of communications may be classified

(*) We express our special thanks to Mr. Manu Lorant, researcher at the Computer Sciences Institute at the University of Namur for his assistance in drafting this section of the paper.

according to three criteria : the degree of instantaneousness, the quality of the dialogue and the security of the communication.

2.1. Degree of instantaneousness

This criterion is pertinent in many legal systems in order to determine where and when the contract has been made (Dutch law), the applicable theory for determining the moment and location of the contract (English law), and the moment at which the acceptance to an offer may occur (German law).

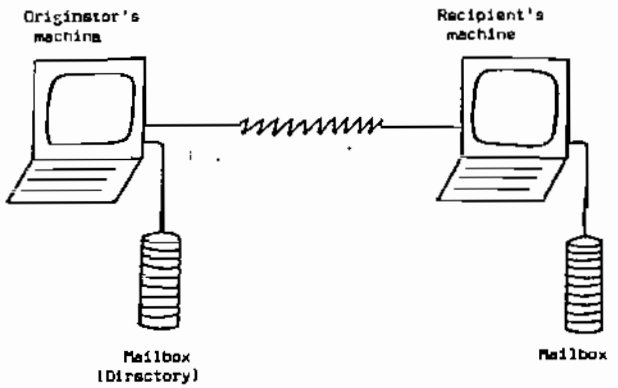
The telephone communication is generally considered to be instantaneous so far as it takes place between one person to another and not by means of an automated answering machine. Instantaneousness of telex or telefax communication depends on the physical proximity of the recipient and on his promptness to answer. In the Brinkibon Ltd. v. Stahag Stahl und Stahlwarenhandelsgesellschaft case (1), the House of Lords decided that communication made by telex is an "instantaneous communication" and accordingly applied the theory of reception (see below).

Videoconference obviously supposes instantaneous communication.

Regarding electronic mail, the question is more difficult : it depends on the degree of interactivity which in its turn depends on the technical outlines of the system. Theoretically, telematic dialogue may be as instantaneous as telephone communication or videoconference communication. However, to our knowledge, operating electronic mail systems only work "off-line". The off-line character may be more or less important, depending upon how often the mailbox is cleared. Let us figure out how electronic mail works.

(1) (1982) 2 All E.R. 293, House of Lords, cited by E. Jayme and U. Götz in IPRax, 1985, Heft 2, p. 113.

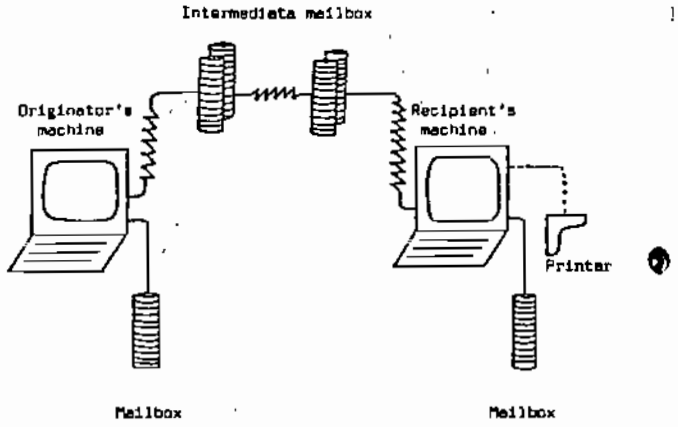
Figure 1



This figure represents an electronic mail operation of direct transmission between two companies (simple figure).

A person (the "originator") who wants to send a message by electronic mail must first prepare it with a "text editor" (i.e. a word processor). When the message is written, it can be submitted to an electronic message handling system, and can then be sent to one or more recipients. After the sending order is given, the message is forwarded to the mailbox of the message originator. Periodically (for instance every hour), the originator's machine sends the messages stored in this mailbox to the recipient's mailbox or the latter calls them. Once the message is stored in the recipient's mailbox, the recipient can read whenever he wants. When he logs-in (i.e. when he is connecting) the machine may inform him of the presence of mail or that he must call the information himself. In certain schemes, it is possible to force the call, i.e. to send the message from the originator's mailbox to the recipient's mailbox before the periodical automatic call. The operation can be more complicated : the message can be sent in transit to three or four mailboxes or even more. This happens when the originator and the recipient are linked to a network (complex schema). The intermediate mailboxes may be owned by the public (ex. DCS mail in Belgium) or the private sector (ex. Eunet).

Figure 2



In this case, the message conveys in transit to four mailboxes. The time required for the transmission depends on how often the mailboxes are cleared. The speed of transmission depends on how often the different intermediate mailboxes are cleared and how promptly the recipient picks up his mail. This process looks like post mail, except that the message is not physically transmitted and transmission is quicker and cheaper. The recipient's mailbox can be compared with his own box and the intermediate boxes are similar to public boxes. Mailboxes are implemented in special directories in which every message constitutes a file. Access to message issuing and receiving is generally protected by a personal identification code.

2.2. Quality of the dialogue

Among the new transmission processes, videoconference permits the greatest range of expression of will : the interlocutors can communicate not only the content of the message, but also with intonations, signs, silences and mimics.

Telephone offers the same possibilities except that the interlocutors cannot see one another. Telex, telefax and electronic mail communications are more limited. They are even more limited in home shopping services where the dialogue is standardised (prepared ordering page where only certain items are to be completed).

2.3. Security aspects

From the legal point of view, the concept of security refers to authentication of the user's identity and to the traces of the transaction which can be used for evidence.

Concerning authentication, in the telephone technique, voice and habits of the correspondent allow the interlocutor to be identified, recognized. The interlocutors must know one another to identify themselves. Videoconference assures more or less the same degree of security as dialogue between parties in physical proximity. Telefax and telex present the most risks : issuing a message depends only on the formation of the call number. At the destination, access to the message is not protected, so that everyone near the machine can read it. The transmitted message contains indications of the originator's machine.

Transmission traces by which the existence and the content of a transaction may be proved vary from one process to the other. Telephone dialogue and videoconference are evanescent, except when they are recorded by means of a tape recorder or a magnetoscope. It is also technically possible to translate a recorded vocal message into a printed writing by means of a "Kurzweil" machine. Still imperfect, expensive and working only with respect to English, it is not widely utilized. Telex and telefax are based on a paper message, but unlike telefax, a telex message arrives in a form different from the one sent. In addition to the message itself, telex and telefax messages contain indications to identify the

originator and the recipient. Concerning electronic mail, a printer can be connected to the recipient's electronic mail terminal in order to print the message. Moreover, it can be stored on magnetic disk. Besides the message itself, the message generally contains data concerning the circuit and moment of the transmission : data relating to the moment of issuing the message (order of sending to the originator's mailbox) and receiving it in the recipient's mailbox, data on the origin and the destination figure on the message as well as the different stages of transmission (transit to the different mailboxes) can be stored.

3. What contracts may be concluded by electronic means ?

The first legal question to be examined is what types of contracts may be concluded by electronic means and be considered legally valid and therefore enforceable ?

Amongst the various classifications of contracts, civil law authors distinguish between "contrats consensuels" ("consensual contracts"), "contrats solennels" ("solemnized contracts") and "contrats réels" ("real contracts") (2).

A description of the main characteristics of these contracts is given below. It appears from these that certain of them cannot validly be concluded by electronic means.

Consensual contracts are defined as those which take place merely as a result of the agreement by the parties, regardless of the way the agreement is expressed. All contracts are considered as falling within this category, unless they are defined as "solemnized contracts" or "real contracts".

(2) See H. De Page, Traité élémentaire de droit civil belge, tome IV, 196, at p. 419 et. seq.

Solemnized contracts are contracts, the validity of which is subject to further formalities such as a writing or the intervention of a public officer. Such formalities are usually required in order to solemnize the conclusion of the contract so that the parties are aware of its consequences and to permit third party to rely on the document. The following contracts
are considered to be "solemnized contracts" : a gift, as defined in Article 931 of the Civil Code (i.e. the gift without immediate delivery of its object), a contract of mortgage (Article 76 of the Belgian law of December 16, 1951 and the French Supreme Court decision of August 27, 1844), a subrogation by the debtor as provided for in Article 1250, para. 2, of the Belgian Civil Code (i.e., when a debtor borrows an amount in order to pay his debt and to subrogate the lender in his rights against the debtor) (3). Such contracts are null and void if the specific formalities to which they are subject have not been completed.

"Real contract" are contracts which take place only when their object has been delivered by one party to the other. The following agreements are deemed to be "real contracts" : loan agreements, escrow agreements, pledge agreements and gifts with immediate delivery of the object (known in French as "don manuel"). Therefore, a loan agreement is concluded only when the lender remits the amount owed to the borrower. In the event the loan is made through the intervention of banks, such remittance is deemed to be performed once the amount is credited to the account of the borrower (4). Case law and legal writers also support the position that an assignment of claim or a pledge of receivables is valid only once the documents establishing such rights have been transferred to the assignee or pledgee (5).

(3) Although they are irrelevant in the context of this paper, it should also be mentioned that marriage and adoption are deemed to be "solemnized contracts".

(4) See J. Ghestin, Traité de droit civil - Les obligations - Le contrat, L.G.D.J. Paris, 1980 at p. 264.

(5) Idem.

Finally, it should be noted that certain formalities are required solely in order to inform third parties of the existence of a transaction. In the event such a formality is not complied with, the contract is enforceable between the parties thereto but not as to third parties. This is the case of sale of real estate which is subject to publicity formalities.

It appears from the definitions and characteristics discussed above that neither the "solemnized contracts" nor the "real contracts" are susceptible of being concluded by electronic means. The formalities imposed on the conclusion of solemnized contracts such as their agreement in writing and in presence of a public officer (e.g., a notary public), which is done by affixing a signature and/or a stamp, constitute an obvious impediment to their conclusion by electronic means. However, one should recall that "solemnized contracts" are very exceptional. Therefore, the fact that they cannot validly be concluded by electronic means has no real impact on the use of electronic means for the conclusion of usual business agreements.

"Real contracts" are much more common. More particularly, documentary credits and assignments of claims, which may be considered as a type of loan and pledge, respectively, are to be deemed as "real contracts". Their validity is therefore subject to the delivery of their object, namely the relevant paper documents. Such delivery cannot, in principle, be performed by electronic means since it requires the physical remittance of the actual documents evidencing the rights which are being transferred. Such restrictions constitute a rather important obstacle to the development of telematic contracts and can be withdrawn only by enacting appropriate legislation.

Consequently, subject to the restrictions resulting from the characteristics of "real contracts" and "solemnized contracts", all agreements can, in principle, be concluded by

electronic means under continental law. However, parties who contemplate concluding a contract by electronic means should pay particular attention to certain possible problems which are discussed hereafter.

4. Questions relating to consent

The fact that the parties are at long distance does not affect their ability to give their consent to each other but it creates additional risks of discrepancies between the respective understanding by each party of its consent. Such risk varies with the quality of the dialogue resulting from the means of communication which is used, its security, the quality of the transmission and the difficulties to handle electronic machines.

4.1. Existence of consent

The consent of the parties must exist for the contract to be valid. One cannot be bound by a contract to which one has not given one's consent. However, as a result of the application of the theory of appearance ("théorie de l'apparence"), the owner of a terminal may in certain cases be bound by contracts to which he has not personnelly given his consent (see point 6.4.2.).

4.2. Real will supersedes declared will

In the event of discrepancy between what has been expressed by the parties and what it was really agreed (resulting, for example, of a malfunctioning of the communication system), the principle existing in French and Belgian law under which real will supersedes declared will should apply (see Article 1156 of the Civil Code). Pursuant to such rule, the party who contends that there is such a discrepancy should establish what was its real intent for the latter to prevail, in the absence of a fault or a negligence on its part. The theory of error could also be invoked by the victim of the discrepancy.

If the discrepancy between the real will and the declared will results from an error of transmission, unlike in German and Italian law, the consequences of the error are not borne by the person whose message has been altered as long as he can establish what was his real will. Those rules should also apply, mutatis mutandis, in case of fraud.

4.3. Quality of consent

The consent should be given after prior reflection. In the context of telematic contracts, one could argue that the speed of the exchange of messages does not allow enough time for reflection. In such a case, the contract could be declared void for error in the consent ("erreur du consentement"). In order to annul the contract, a party should establish that it was induced to enter into such contract on the basis of erroneous information. In certain cases, when the relationship between the parties is unbalanced, the courts have imposed on the part of the party which is well-informed an obligation to inform the other party prior to the conclusion of the contract. Since such obligation must be performed during the negotiation process, it is questionable whether it is feasible in an electronic context.

The pre-contractual obligation of information may relate only to the object of the contract or take into account personal needs of the co-contractant. If the fact that the parties are not present to each other complicates the provision of information (impossibility to see the object of the contract itself), it does not prevent the fulfillment (precise descriptive information can be given by telecommunication and the likely development of ISDN will even more facilitate that).

4.4. Quality of the consenting persons

Since a contract is concluded on the basis of an offer and an acceptance, it is important to determine in what capacity (offeror or offeree) the parties act. Article 1101 of the Civil Code defines a contract as "an agreement whereby one or

more persons bind themselves vis-à-vis one or more other persons, to give, make or to refrain from doing something". It appears from this definition that the conclusion of a contract results from an exchange between persons. What is the value of an exchange between machines (terminals) ? Both legal writers and the Courts have admitted that a contract can be concluded through a machine since the latter is under the control of human beings. If the contracts were concluded between machines operated via expert systems, the same principle should apply.

4.5. The notions of offer and acceptance

4.5.1. Offer

The offer is a unilateral declaration of will by which the offeror proposes to others to conclude a contract. It can be addressed to a specific person or to the public. Unlike German law (6), under French, Belgian and Luxembourg law, the offer theoretically does not bind his offeror. However, for the purposes of security in business, case law limits this principle by holding that the offer must remain open during a certain period.

To bind the offeror, the offer must:

1. express the will of the offeree to conclude a contract with the offeror;
2. be precise, i.e., include all essential elements of the proposed contract; the degree of required precision depends on the type of contract; when the offer is rather unspecific, it constitutes an offer in the legal sense; lack of specificity involves only minor elements which can be determined by the judge taking the circumstances into account;

(6) §145 of the B.G.B.

3. be firm, i.e., not include general reserves (for instance with the option to modify the terms and conditions of the contract);
4. not be equivocal.

An offer does not require a special form. It may be expressed or tacit. An advertising in a newspaper, a placard, a leaflet can be an offer. An item in a display-window when the price is indicated is also considered to be an offer.

Provided that all requirements are fulfilled, an offer communicated in a telex or telefax message is an offer in the legal sense. Unquestioned by the lawyers of Napoleonian inspiration, the statement is nearly unanimously criticized by German doctrine. Concerning home shopping services, the latter indeed consider that the seller is not an offeror but a person who invites the recipient to negotiate and eventually accepts offers from purchaser (7). Following German doctrine, the shopkeeper does not want to be bound without having checked his stock and the solvency of the client. (One will object to these reflections that the offeror has the possibility to limit his offer on the basis of the state of its stock).

How long must the offeror keep his offer open? The duration can be provided for by law or be made explicit in the offer. The minimum duration of an offer is, for instance, given in a provision of French Law No. 78-22 of January 10, 1978 relating to consumer information and protection in certain credit operations which states that the lender must maintain his offer during a minimum duration of 15 days. When

(7) H. Radeker, Geschäftsabwicklung mit externen Rechnern im Bildschirmtextdienst, Polycopie G.M.D., St. Augustin, 1983, p. 2; H. Bartl, Aktuelle Rechtsfragen des Bildschirmtext, Der Betrieb, 1982, 1100; W. Brinkmann, Vertragsrechtliche Probleme über Bildschirmtext, Der Betriebs - Berater, 1981, 1185.

the duration is explicitely set forth in the offer, the offeror binds himself to keeping his offer open.

In the absence of any indication in the law or in the offer, the offer must remain open for a reasonable time. The reasonableness depends on all circumstances: it can also depend upon the offeror's desire to obtain an answer quickly or upon the type of bargain.

4.5.2. Acceptance

Acceptance consists in the declaration of the offeree's will to conclude the contract on the same terms as those expressed in the offer, at least as to essential elements. Elements which may a priori be considered as being minor can in fact be essential for one of the parties. This will generally be understood from the circumstances. If the acceptance does not meet the essential elements of the offer, acceptance will constitute a new offer.

Acceptance like offer does not require special form. It can be express or tacit. It can thus take the form of a writing, a telex, an electronic mail message, a telefax message or a telephone call. However, if the offer requires a special form of acceptance, it must comply with that form in order to be valid.

In international commercial sales, the terms and conditions of contracts often submit the formation of the contract to ratifications by the seller after he receives the purchaser's acceptance. This type of provision is frequent in the sales of goods for production; it can be explained by the need for plannig the production. In fact, because the seller's offer is not firm, it cannot be considered as an offer in the legal sense.

In practice, parties often submit their contract to an agreed formal requirement such as a writing. The legal nature of this requirement is often uncertain: does the formation of the contract require it or is it merely necessary for proof?

In case of doubt, under German law (see B.G.B., §127), the contract is deemed to be fulfilled. Following the principle of consent and in the absence of a similar provision, this solution cannot be applied for contracts under French, Belgian and Luxembourg law. In this last case, the judge, at trial level, will consider the will of the parties from all circumstances. In each case, as Mr. Kahn states, it seems difficult to qualify the agreed requirement in a singular way because it is at the same time part of the formation and the proof of the contract (8). Current practice, he writes, should take into consideration modern techniques for expressing thought, as statement which is still valid 25 years later.

When the offer requires a quick answer without specifying a special means of transmission, the offeree may choose the means he wants, provided it can transmit the message quickly (for instance, telex, telephone, telefax, electronic mail).

When must the offeree give his acceptance? This question is connected with the problem of the duration of offers: acceptance must reach the offeree before the offer expires. The determination of the moment of acceptance is of special interest in German law.

8) Ph. Kahn, La vente commerciale internationale, Bibliothèque de droit commercial, Sirey, Paris, 1961, p. 78.

Under section 147 of the German Civil Code (B.G.B.), offers made to persons must be accepted immediately (otherwise, acceptance constitutes a new offer), while offers made to absent persons must be accepted with a reasonable time in light of the circumstances (as French, Belgian and Luxembourg law). Section 147 gives an example of an offer made to a person present (excluding the hypothesis of automatic answering machine). The question raised by home shopping services is to know whether communications by telematics are made to persons present or absent. The answer to this question seems to depend upon the technique utilized.

German doctrine distinguishes two cases:

(i) either the seller has his own computer;

(ii) or he rents a space in a computer of the German telecommunications authority, the "Deutsche Bundespost" (9)

In the second case (which could be qualified off-line), the communication undoubtedly occurs "inter absentes". It is less certain in the first case because the seller's computer can react instantaneously and can communicate his answer immediately. It is questionable whether the dialogue occurs person from person.

The difficulty, much debated in criminal law, arising from the existence of a screen between man and machine appears here again. It is also questionable whether a declaration of will communicated by telematics may be received by a computer instead of a person.

(9) The Bildschirmtext service is accessible by the professionals but is mostly destinated to the large public.

. Determination of location and moment of contracts

According to tha principle of consent and except as to real and solemnized contracts", contracts are formed when onsant is given by all partiea, i.e., when there ia an offer nd an acceptence. The determination of the location of the ffer end acceptance ie difficult when parties are not hysically present, and determination of the momant is uestionable when the tranamiasion of each party's consent equiras time.

There ie e great practical interest in determining tha ocation and the momant of the contract'e formation.

5.1. Interest of the question

The moment of tha contract'a formation is important with egard to:

the moment at which the offeror is still entitled to withdraw his offer and the offeree his acceptance;
capacity of the contracting parties at the moment of the contract'a formation;
applicable law when new legislation has been passed during the negotiations;
in the case of sale of an identified good, it determines tha transfer of title and the hurden of tha risks;
the price when it is determined by market price.

Location of contracts is important for:

determining applicabla customary practice;
determining the competent court;
applicable law in international private law;

Many doctrinal rules have been proposed, although there is no clear indication from the Courts. Before discussing these rulas, we shall define more precisely the notions of offer and acceptance.

5.2. Rules for determining the conclusion of contracts

Because of the principle of "independent will", parties may agree upon tha moment and the location of the conclusion of contracts.

In the absence of these elements, the location of contrats is determined hy legal provisions (Germany, Italy, Switzerland) or case law (Belgium, Luxembourg, France). In the latter countries, location of contracts is determined by the trial court judge.

In Belgium, Luxembourg and France, legal writers have developed many theories. These are more or less followed by the judges. Legal writers generally consider that the moment in which contract is concluded determines its location (monist approach). Certain writers, however, think that moment and location are not necessary linked (dualist approach). The main schemes are briefly described below.

5.2.1. The declaration rule

According to this rule, contracts are concluded as soon as acceptance is given, provided that the offeror is made aware of the acceptance. This rule is in practice not very workable because it is sometimes difficult to infer a declaration of will from the offeree's behaviour or other circumstances.

5.2.2. The expedition rule

The expedition rule does not raise the same problem as) the declaration rule. According to the expedition rule, ontracts are formed at the moment the declaration of the :ceptance is sent (ex. sending of a letter or touching the yboard to order the sending of an electronic mail message).

5.2.3. The information rule

Pursuant to the information rule, contracts are formed : the moment when the offeror takes notice of acceptance. iis theory creates a vicious circle. Following the idea that ie offer and acceptance are given when both parties are aware : one another's will the formation would require knowledge by ie offeree of the fact that the offeror has taken notice of :ceptance and so on. On the other hand, formation of ontracts depends on the offeror's taking notice of the fferee's declaration of will. Laws of Spanish inspiration ave adopted this scheme (10).

5.2.4. The reception rule

Corrective to the rule of information, the rule of eception provides that contracts are formed at the moment of ie offeree's acceptance is received by the offeror, i.e., the oment at which the offeror could take notice of acceptance. iis rule has been embodied in statute law in Germany (B.G.B., 130) and Italy (Articles 1326 and 1335 of the Civil Code).

Among these doctrinal rules, most jurisdictions have dopted the expedition and reception rules. Finally, one ould note that under Dutch law, the instantaneous character f the encounter of the offer and the acceptance has an impact n the location of the conclusion of the contract since those ontracts are deemed to be concluded both at the place from where the offer was sent and the place where it was received (11).

New electronic communication means do not challenge the legal principles of the formation of contracts. The only problem lies in the proof of the moment and location of contracts. Telefax presents in this connection the same difficulties as normal mail; contracts concluded by video-conference are similar to those concluded by persons physically present; electronic mail offers many means of proof (i.e., electronic records), provided that they are regarded as authentic.

5.3. International private law

The question of determining the contract "inter absentes" is a classic one in international private law. The rule ratified by continental caselaw is that applicable law depends on the will of the parties ("loi d'autonomie"). There is no difficulty when the parties have explicitely expressed their will. If they have not, it may be deduced from the circumstances. If not, the judges, considering all circumstances, will have recourse to presumptions and adopt the law which seems the most adequate to the case. Two places are most often taken into consideration by the judges: the place where the contract has been concluded or the place where it must be executed.

It is arbitrary to locate a contract "inter absentes" by considering the place where it was concluded. Prominent legal writers consider that the real interests of the parties must be taken into account. According to them, the real interests concern the execution of the contract because the execution expresses the substantial and legal relations

(10) Article 1262 of the Spanish and Cuban Civil Codes, cited by Kahn, op. cit., p. 68.

(11) See E.J. Rotshuizen, Pays-Bas, in la Formation du contrat (sous la direction de R. Rodière), Institut de droit comparé de Paris, Pedone, Paris, 1976, p. 104.

etween the parties (12). Moreover, it is nearly impossible nd it would be inconvenient and inconsistent to subject the ontract's performance to different laws.

The location of the execution of the contract is often difficult to determine because it occurs in many and undetermined places. To solve this problem, the criterion of the place where the characteristic action of execution occurs is adopted. The problem is displaced but not solved. The determination of the location where the characteristic action occurs is difficult for instance when goods or persons are removed from one country to another. Then, the location of the establishment or the habitual residence of the party who must execute the characteristic action should be the criterion. This is the solution adopted by the International Convention of The Hague of June 15, 1955 and the European Convention of Rome of June 14, 1980.

Besides the international instruments determining the applicable law, other conventions containing provisions of substantive law have been elaborated. The Convention of The Hague of July 1, 1964, relating to the formation of contracts and the Convention of Vienna of April 11, 1980, which has not yet entered in force.

We shall not discuss in detail these provisions as they are known by everyone, but only provide a brief description.

The Convention of The Hague has a very different scope of application from one country to another because of the reserves. The aim of the Convention is to provide a uniform regime of international sale contracts by avoiding details

(12) H. Battifol and P. Lagarde, Droit international privé, L.G.D.J., Paris, 1976, Tome II, 6th edition, p. 255.

regarding the formation of the contract, i.e., the notion of offer and acceptance and their effects, but the exceptions are too numerous and unspecific. Article 4 of the Convention defines the offer: it must be sufficiently precise; Articles 6 and 9 seem to ratify the rule of reception, except in certain cases (Articles 6 al. 2). Under Article 8, acceptance must reach the offeror within a reasonable time, and in case of a verbal offer, the acceptance must occur immediately.

6. Questions relating to authentication

6.1. The problems

One of the main problems raised in the event a contract is agreed upon between parties who are not physically present relates to authentication. Each party should be ensured that the message he receives is issued by the person who claims to be the sender and who is duly authorized to enter into a contract. Before he accepts an offer, the offeree should be satisfied that the offer has been issued by the person who claims to be the offeror. Also, when he receives the acceptance of his offer, the offeror should be satisfied that it has been sent by the person who claims to be the offeree. Both parties should also be ensured that their messages have not been altered during the transmission.

The issue is of particular importance because of the existence in continental law of the rule of "apparent mandate". Pursuant to this rule, one can be bound by a contract one has never agreed upon.

We will examine hereunder (i) the notion of authentication, including a description of modern means of authentication used in electronic communications and their legal value and (ii) the legal consequences of improper authentication.

6.2 The notion of authentication

6.2.1. Authentication in general

Authentication has two functions: (i) to identify the author of a message and (ii) to indicate such author's intent to be bound to such message. These functions have traditionally been fulfilled by affixing a handwritten signature on a paper document. For example, when a contract is concluded by the exchange of letters, each party can verify the origin of the letter he received by examining the signature at the bottom of the letter. Such a letter not only identifies the author of the letter but it also indicates the latter's agreement as to the contents of the letter.

In the event a contract is concluded by telephone, telex or other electronic means, the use of the handwritten signature as the means of authentication is not possible. However, there are no means of authentication which can be used in an electronic environment. Hereafter is an unexhaustive list and brief description of such modern means of authentication and a discussion of their legal acceptance.

6.2.2. Modern means of authentication

There are three categories of new techniques of authentication: secret codes, also known as personal identification number code, cryptography and recognition of the physical characters at long distance. In fact, these authentication techniques operate as a verification procedure: a machine compares the data received with a reference and decides whether the difference between the two is sufficiently small to assume that the authentificator is the person he claims to be. Although a handwritten signature may also be subject to verification by the addressee, it should be noted that unlike modern means of authentication, a handwritten signature is generally not systematically verified.

One of the most widespread authentication techniques is the secret code. It consists of a combination of digits and/or letters which is, in principle, unique and known only by the owner. It is often combined with a magnetic card or memory card. This technique is largely used for transactions at automated teller machines and points of sales. It presents a high degree of security since a system allowing four attempts with a four-digit code presents a risk of only 0.03% of the discovery by a third party ignoring the code.

Criptography is a system consisting of coding a text with a confidential key and algorithms so as to render such text unreadable to a person who would not have the corresponding decoding key. Criptography is used in the banking sector for electronic fund transfers between banks themselves (e.g., the S.W.I.F.T. system) and between banks and their corporate clients. The installation of such systems is very expensive and their operation is relatively slow.

Authentication can also be performed through systems permitting the recognition of physical characteristics (such as iris, blood, face) at long distance. It should be noted that, as such, these systems perform only one of the two functions of authentication i.e., identification but not indication of will. In order to perform this second function these systems should be combined with an appropriate procedure, whereby the person whose physical characteristics are recognized indicates his agreement. On the other hand, such techniques, compared to criptography and secret codes present the advantage of identifying a person and not only the holder of the access device.

6.3. Legal value of modern techniques of authentication

6.3.1. The problems

The issue of the legal value of authentication

:chniques is twofold. Its first aspect relates to the missibility of such techniques as evidence before the urts, this aspect is not dealt with in this paper (13). Its cond aspect, which is examined hereafter, relates to the liability of new authentication techniques for the parties the contract and, in the event e dispute arises, vis-à-vis e courts. Obviously, the parties should not be satisfied th the reliability of an authentication technique if a court uld not give any legal value to it in the event of a spute. However, it is very difficult to predict whether e urt would give probative value in the event of e dispute to e most recent techniques of authentication (secret codes, yptography and electronic recognition of physical character long distence) as long as there is no caselaw on it.

6.3.2. The caselaw answers

With regards to predicting the legal value of the most cent means of authentication, it is helpful to know the gree of reliability courts have granted to older techniques f authentication, i.e., those used for the conclusion of greements by telephone and telex.

With regard to telex contracts, the French courts have ken notice of a long-standing practice within the business world to conclude contracts by telex (14). In Belgium, there is to our knowledge no caselaw on this point. In Italy, the District Court of Ascoli Piceno (15) held that:

> "In fact, since the (telex) message identifies the teleprinter which produced the text, which is at the sender's exclusive disposal, the sender's identity also must be presumed certain."

However, this Court also held that this presumption of authorship is rebuttable.

The Court's reasoning is based on the fact that the technical and other features of telex communications (notably the identification of each subscriber by a code and number and the exclusive use of the telex apparatus provided for in the Presidential Decree 735 of February 7, 1963 regulating the direct telegraph service between telegraph users or telex services) make it possible to show that the telex of a message sent by teleprinter is written by the sender himself, thus precluding any discrepancy between the message written by the sender and that received by the addressee in the absence of any technical defect in the teleprinter. Secondly, pursuant to the Court, while it is true that the message is unsigned, the special features of the document, which are marked at the beginning and the end of the message with the number and code identifying sender and addressee, are far safer and more important elements of proof than those which can be inferred from the identification of the sender in a telegram.

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13) For a discussion of this aspect see Bernard Amory and Yves Poullet, Le droit de la preuve face à l'informatique et à la télématique, Approche de droit comparé, Revue Internationale de droit comparé, 2, 1985, p. 331; and Bernard Amory and Xavier Thunis, L'authentification de l'origine et du contenu des transactions sans papier et questions de responsabilité en droit continentel, in Les transactions internationales assistées par ordinateur, Litec, Paris 1987.

14) See Telex Contracts - A Comparative study, International Financial Law Review, May 1982, p. 22, and cases cited

15) Soc. Socona v. Soc. Siolar-Tronto, District Court of Ascoli Piceno, September 7, 1980, (1982) E.E.C., 317.

However, in our opinion, the telex authentication by mber and code might not be as reliable as the Italian Court ld. It is possible for a third party to access the telex rminal or to connect himself to the telex network and esent himself since those identification devices are not cret.

In The Netherlands, the District Court of Arnhem cently ruled that it was unlikely that a bank guarantee sent telex originated from the apparent sender of the telex 6). In this case, a Swiss corporation tried to draw under a nk guarantee allegedly issued by such a Dutch bank. The tch bank stated that it never issued the guarantee received Switzerland and denied its duty to pay, arguing, notably, at the receipt of a telex does not reveal anything about the nder's identity. According to the Dutch bank, anyone can nd a telex and pretend he is someone else. Expert witnesses pointed by the Court reported that the receiver of a telex s no absolute certainty about the identity of the sender of e message and that a telex without a testkey lacks thentication and can only be issued and confirmed by mail. e Court held that since a code number was missing in the lex, the Swiss bank, as addressee, should have checked its thenticity with the sender, and that under the circumstances the case, it was unlikely that the guarantee originated om the Dutch bank.

Pursuant to an expert opinion before a German Court 7), the identification of the sending and receiving leprinters on a telex message does not prove such message s been sent and received by the identified teleprinters. wever, in this case, the Court held that the message had tually been sent by the identified teleprintar on the basis a testimony from a third party.

6) See report on this case by Joseph J. Van OOrt, International Business Lawyer, June 1986, p. 173.

7) OLG Karlsruhe, June 12, 1971, NJW, 1973, Heft 36, 1011.

It appears from this broad survey of caselaw that the legal value of authentication by telex is very uncertain in continental law countries. The Court's acceptance of authentication by telephone is even weaker. A French Supreme Court's decision ruled that the telephone subscriber should not be presumed as the author of message originating from its telephone installation (18). In this matter, S.A.R.L. Régie Print, a newspaper publisher, alleged that it had received telephone orders for various announcements from Bouhassina. Bouhassina argued that it had never made such orders and refused to pay them to S.A.R.L. Régie Print. The trial court held that Bouhassina had to pay for the announcements since it was responsible for the telephone installation from which they originated and therefore should have controlled its use. The Supreme Court held that the trial court judge did not have evidence of the identity of the sender of the orders and therefore, quashed the decision.

However, it should be noted that there are several cases relating to contracts concluded by telephone on which the question of authentication was not at stake (19). Such cases relate only to the question of the moment and place of conclusion of the contracts. The absence of arguments on the authentication aspects may be due to the fact that the use of the telephone, at least to the extent that the parties know each other, provides a relatively safe and natural authentication, i.e., the recognition of human voice. On the

(18) Bouhassina v. S.A.R.L. Régie Print, Cour de Cassation, Ch. Comm., June 11, 1981, Bull. Civ. Com. No. 265, p. 211. See also A. Bensoussan, OI Informatique, March 1984, No. 178, p. 75.

(19) See in Belgian Law: Commercial Court of Liège, December 7, 1979, Jur. Liège, 1980, p. 95; Commercial Court of Brussels, March 1st, 1960, J.C.B., 1960, p. 135. In French law, Supreme Court, May 14, 1912, Dalloz, 1913, I, 281.

her hand, if the parties do not know each other, the lephone is, from a technical standpoint, considered as very liable.

6.4. Consequences of improper authentication

Improper authentication can result in the alteration of e message during its transmission or issuance of a message unauthorized person. Therefore, the questions to be amined are:

(i) which party will bear the risk that the message is lost or altered during the transmission; and

(ii) whether one can be bound by a message one has not sent at all.

6.4.1. Message alteration or loss

The sender of a message bears the risk that such ssage is lost, unless it can establish that the loss is due the fault or negligence of a third party.

Accordingly, if the sender can establish that the ssage was lost because of fault or negligence on the part of e carrier of information, the former could, in principle, aim compensation against the latter. However, it should be phasized that in Continental Europe, the carriers of formation are public telecommunications monopolies and are nerally exempted from all liabilities for the lecommunications services they provide (20).

In the event the message received by the addressee is tered during the transmission, the sender is normally bound the message as it was received by the addressee.

0) However, in France pursuant to the Law of October 23, 1984 relating to the public service of telecommunications, J.O. 25 October 1984, p. 3335, the P.T.T. may, in certain cases, be liable for the telecommunications services.

However, if it is obvious or very likely for the addressee that the message he received was altered, the addressee should contact the sender, and if he does not, the sender cannot be bound by the content of its message.

Finally, it should be noted that under Article 1433 of the Italian Civil Code, the rules providing for the invalidity of a contract because of an error are specifically applicable to an error which would happen in the transmission of a party's consent.

6.4.2. Unauthorized message

In the event of improper authentication, it may happen that a message is sent by an unauthorized person who appears to the latter as the authorized holder of the authentication means. Such a person may be an employee of the holder of the authentication means or a third party who arranges to access the telecommunications network and present himself with a false identity.

Pursuant to the rule of "apparent mandate" existing in Belgian, French and German law, the authorized holder of the authentication means may be bound by a message sent by an unauthorized person if the receiver of the message may reasonably think that the message was issued by an authorized person. This theory has been based on the standard of fault. In its decision of December 5, 1953 (21), the Court of Appeals of Paris ruled that a company was bound by the use of its stamp by a third party since it had recklessly permitted the third party access to the office where such stamp was kept. Since 1962 (22), the apparent mandate theory is applied even in the absence of fault or negligence of the "apparent

(21) Paris, December 5, 1953, Dalloz 1953, p. 315.

(22) Cass. fr. (ass. plén. civ.) Decemberr13, 1962, Dalloz, 1963 and note by J. Calais-Auloy.

mandator" provided that the third party is in good faith on this point. Although we are not aware of any case law, this principle could also apply to contracts concluded by electronic means.

7. Conclusions

The answers to the questions of where and when a contract has been concluded is not substantially different if the contract has been concluded by electronic means or by more traditional means of communications like the exchange of letters. The rules which have been elaborated in the past in order to determine the location and the moment of conclusion of contracts between parties who are not physically present can be easily tranposed to contracts concluded by electronic means.

The problems relating to authentication are more delicate. In an electronic environment, the generally recognized means of authentication, i.e., the handwritten signature, is no longer possible. It must be replaced by other means of authentication. It appears that the legal acceptance of the latter are uncertain. The courts have adopted different solutions with regard to authenticetion by telex, although telex has been widely used for a long time. The legal acceptance of more recent means of authentication for the conclusion of contracts by electronic means is even more uncertain. This does not mean that technology which is available and recognized as performing the authentication functions adequately should not be used for the conclusion of contracts. However, under the current state of continental law, in order to avoid uncertainty as to the legal acceptance of modern means of authentication, it is strongly recommended that parties who intend to use them agree in advance in writing on the validity of the technology to be used. Of course, such agreements are only feasible between the parties

who are in regular contact with each other. Such agreemen may also be concluded within professional bodies groupi business entities which are likely to enter into agreement This has already been achieved in the banking communi (SWIFT).

Résumé : La conclusion de contrats par des moye électroniques soulève des problèmes juridiques qu'il convie d'identifier et dont il y a lieu de mesurer la portée. À lumière des droits privés français et belge, on peut affirm que ces problèmes se limitent à des questions de preuve q peuvent être résolues.