Study unit 2
What can be patented?

Overview

In this study unit you will be introduced to the concept of an "invention". You will examine the notion of patentable subject-matter — things for which a valid patent can be obtained. You will also determine which requirements an invention should satisfy in order to qualify for a patent. In particular, you will examine the meaning of the concepts "novelty", "inventiveness", and "utility".

Learning outcomes

After completion of this study unit, you should be able to —

- ❏ explain the meaning of the term "invention"
- ❏ explain why certain subject-matter is excluded from patentability
- ❏ understand the concepts "novelty", "state of the art", "inventiveness", and "utility"
- ❏ understand the basic distinction between novelty and inventiveness

Setting the scene

Look again at the episode we described in `Setting the scene' in Study Unit 1. Vusi has discovered that his cream can also be used to diagnose skin cancer.

Thandi and Vusi disagree on how to proceed with their inventions.

Thandi wants to reveal her new program at an international software exhibition, to be held in Mauritius in a few weeks' time. She believes that the exposure which the cream and her program will enjoy there contribute to the success of their marketing campaign.

Thandi also wants to sell a few hundred sachets of the cream to Mo Power Inc, a pharmaceutical corporation based in the United States of America. The corporation intends to test the cream on female and male volunteers.

Vusi, in turn, would like to give samples of the cream to

Professor Moodley, a specialist in chemical engineering at the University of Bombay.

In desperation, Vusi approaches you for advice. He wants to know whether he can patent the cream, or its manufacturing process, or both. He also wants to know whether he can patent it as an aid to diagnose cancer, and if any of his or Thandi's intended actions will affect the patentability of their inventions.

Discussion

Patentable inventions: introduction

By international agreement, patents are available for inventions in all areas of technology: article 27.1 of the TRIPS Agreement states that “patents shall be available for any inventions, whether products or processes, in all fields of technology”. This means that just about anything that you develop, if it has industrial application, can be patented. A chemical compound can be patented; a machine can be patented; processes for developing or making things can be patented. Indeed, very few things cannot be patented; those which cannot are found in the established exceptions to the basic principle.

Article 27.1 of the TRIPS Agreement also states three requirements which an invention should meet in order for it to qualify for a patent. A patentable invention must be –

- ❏ new,
- ❏ involve an inventive step, and
- ❏ be capable of use or application in trade, industry, or agriculture.

Implicit in article 27.1 is a fourth requirement – what is sought to be patented must be an *invention*. Sometimes this is stated as the requirement of patentable subject-matter.

Patentable subject-matter

Introduction

To qualify for patent protection, an invention must be patentable subject-matter. The content of the concept “patentable

subject-matter" is usually established negatively by statute, in the sense that patent statutes usually state exceptions to the general principle that patent protection is available for all fields of technology.

Article 27.2 of the TRIPS Agreement allows countries to exclude from patentability, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality. This object includes protecting human, animal, or plant life or health, and avoiding serious prejudice to the environment. But an invention may not be excluded merely because its exploitation is prohibited by law.

Article 27.3 of the TRIPS Agreement then provides that countries may also exclude from patentability –

- ❏ diagnostic, therapeutic, and surgical methods for the treatment of humans or animals; and
- ❏ plants and animals, and essentially biological processes for the production of plants or animals.

Note that plant and animal micro-organisms, and non-biological and microbiological process for the production of plants and animals are not excluded by article 27.3. Countries are also required to protect plant varieties by patent law or an effective sui generis system, or any combination of the two. For example, South Africa has opted for a sui generis system in terms of the Plant Breeders' Rights Act 15 of 1976. The protection of plant varieties is discussed in a separate module.

National laws often exclude the following from patentable subject-matter:

- ❏ discoveries of materials or substances already in nature (one cannot, for example, patent the discovery of a new planet)
- ❏ scientific theories, or mathematical methods (such as the theory of relativity)
- ❏ plant or animal varieties, or essentially biological processes for the production of such animal and plant varieties
- ❏ schemes, rules, or methods for performing purely mental acts, playing games, or doing business
- ❏ methods of treatment for human or animals, or diagnostic methods practised on humans or animals

Accordingly, section 25(2) of the South African Patents Act states the following exclusions from patentability:

- ❏ a scientific theory
- ❏ a mathematical method
- ❏ a literary, dramatic, musical, or artistic work, or any other aesthetic creation
- ❏ a scheme, rule, or method for performing a mental act, playing a game, or doing business
- ❏ a program for a computer
- ❏ the presentation of information

Section 25(3), however, states that section 25(2) "shall prevent, only to the extent to which a patent or an application for a patent relates to that thing *as such,* anything from being treated as an invention for the purposes of this Act" (emphasis added). (Similar wording appears in article 52(3) of the European Patent Convention and section 1(3) of the German Patent Act, for example). So the effect of section 25(2) is not to prevent a product falling within any of the categories mentioned from constituting an integral part of a comprehensive patentable invention; this subsection merely entails that products falling within the listed categories of mental products do not *themselves* qualify as patentable inventions. It has been argued, though, that the listed categories *as such* are also covered by article 27.1 of the TRIPS Agreement, and so their exclusion is in breach of the general TRIPS obligation (see Daniele Schiuma "TRIPS and Exclusion of Software 'as such' from Patentability" (2000) 31 *IIC* 36 at 51).

Section 25 lists three further instances where fields of technology have, in the public interest, been excluded from patentability:

- ❏ an invention the publication or exploitation of which would be generally expected to encourage offensive or immoral behaviour (section 25(4)(a))
- ❏ any variety of animal or plant, or any essentially biological process for the production of animals or plants (section 25(4)(b))
- ❏ a method of treatment of the human or animal body by way of surgery or therapy, or of diagnosis practised on the human or animal body (section 25(11))

When one deals with subject-matter that may or may not be patented, three main considerations may be distinguished:

- ❑ An intellectual conception is patentable only to the extent that it has been embodied in a technical application.

- ❑ Techniques that relate to biological subject matter warrant special treatment, either because of the demands of public interest, or because a special legislative regime is necessary for adequate protection.

- ❑ Moral and social values may bar patentability.

Intellectual conceptions

Computer programs

Section 25(3) has been invoked to support the argument that a computer program can sometimes validly be patented. Computer hardware is patentable subject-matter, and patent protection has sustained the computer industry since its inception. Computer software, however, poses problems in that it is "as such" excluded from patentability. It is argued, then, that section 25(3) distinguishes between instances where the computer program is claimed as such, and those where it is not. Examples of the latter would be where the patent claims are directed to a computer programmed in a particular way (say, a pocket calculator, where the program is hardwired into the computer in such a way that it becomes an inseparable part of it), or to a method of programming a computer. In these instances, so the argument goes, a valid patent can be obtained (see Timothy Donald Burrell *Burrell's South African Patent and Design Law* 3rd ed (1999) 45)).

Some feel that this result is undesirable, as it perpetuates an artificial and absurd distinction whereby a program written on paper is denied patent protection, while the same program committed to the memory of a computer then becomes patentable. Such an interpretation is said to render the exclusion of computer programs in section 25(2) nugatory, and for this reason it is said to be untenable. South African courts have not had an opportunity to consider these provisions, and it is difficult to predict with any certainty what approach they will adopt.

When one looks to jurisdictions with similar provisions, the position is no less unclear. For example, in *Genentech Inc's Patent* 1989 RPC 147 (CA) at 240 Dillon LJ said:

> "It would be nonsense for the Act to forbid the patenting of a computer program, and yet permit the patenting of a floppy disk containing a computer program, or an ordinary computer when programmed with the program; it can well be said, as it seems to me, that a patent for a computer when programmed for a disk containing the program is no more than a patent for a program as such."

In the *Guidelines for Examination in the EPO* it is stated:

> "A computer program claimed by itself or as a record on a carrier, is not patentable irrespective of its content. The situation is normally changed when the computer program is loaded into a known computer. If however the subject matter as claimed makes a technical contribution to the known art, patentability should not be denied merely on the ground that a computer program is involved in its implementation. This means, for example, that program-controlled machines and program-controlled manufacturing and control processes should normally be regarded as patentable subject matter. It follows also that, where the claimed subject matter is concerned only with the program- controlled internal working of a known computer, the subject matter could be patentable if it provides a technical effect."

The distinction between securing a technical effect and merely producing or manipulating information is uncertain. The computer industry lobbies strongly for the removal of statutory impediments to the patentability of computer programs in Europe, and for the more liberal grant of patents for computer program inventions, as is the case in the United States and Australasia (see WR Cornish *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* 4th ed (1999) § 5-69 p 216). See further the discussion of patenting business methods below.

However, in *IBM/computer programs* [1999] EPOR 301, the Technical Board of Appeal of the European Patent Office ruled

that the *Guidelines* were not binding on the Board. It reiterated . that a patent could not be granted where it did not relate to the computer program as such, but added that this exclusion should be narrowly construed. The Board felt that the essential requirement for patentability was that an invention had a technical character. The exclusion of computer programs as such was aimed at excluding programs which were mere abstract creations that lacked a technical character. So there was nothing objectionable to a computer program product claimed by itself, provided that it produced a technical effect beyond the normal physical interactions between hardware and software.

Aesthetic creations

The main reason for excluding most of the other categories of inventions stated in section 25(2) (a scientific theory; a mathematical method; a literary, dramatic, musical, or artistic work; aesthetic creations; and the presentation of information) is that they are not suitable *as such* to be used or applied in trade, industry, or agriculture – one of the requirements for patentability (see further the discussion of “utility” below). For example, where the creativity lies in the aesthetic ideas expressed (such as the use of a specific colour for paper), there is no room for patentability. But where a new technical process or product is devised for its aesthetic appeal (such as a new method for making coloured paper), such process or product can be patented.

Discoveries

Things which already exist in nature cannot, with some exceptions, be patented. The distinction between a discovery and an invention is well established in many patent systems. It has been said that *discovery* is the unearthing of causes, properties, phenomena or objects which already exist in nature, whereas *invention* is the application of such knowledge to the satisfaction of social needs (Cornish op cit § 5-56 p 207).

Only when a discovery, or a scientific theory or mathematical method is embodied or incorporated in a product or process does it become patentable in that form. It is, of course, against the public interest to allow monopoly rights to exist in respect of

basic scientific or mathematical theories or axioms. The high cost of research has prompted scientists to file patent applications for discoveries at the earliest possible stage at which they can receive protection. For example, the American participants in the Human Genome Project (mapping the human gene structure) prematurely tried to secure protection for thousands of genes and gene elements, before the practical relevance of these discoveries were certain (see Comish op cit § 5-59 p 209). Note that, for example, article 5(3) of the Directive of the European Parliament and of the Council on the Legal Protection of Biotechnological Inventions (98/44/EC of 6 July 1998) provides that a patent application must disclose industrial application of a gene sequence or partial sequence.

Schemes for performing mental acts: presentation of information

The reason for excluding a scheme, rule, or method for performing a mental act, playing a game, or doing business is clear – these mental products are usually protected by copyright law.

Although the rules for playing a game are not patentable subject-matter, a game board and pieces, new card packs, and similar equipment, for example, are patentable (see *Cobianchi's Application* (1953) 70 RPC 199. Also, colouring a squash ball a particular shade of blue to make it more visible has been held to be patentable *(ITS Rubber's Application* [1979] RPC 318), whereas colouring fertilizer to distinguish the various types from one another has been held to be unpatentable *(Johnson's Application* (1930) 47 RPC 361).

The courts approach cases involving the patentability of technical devices associated with the collation, deployment, or interpretation of information by inquiring whether the novelty or usefulness of the invention lies in the device or in some sort of information. If the latter, the invention is a "mere scheme or plan" and so not patentable.

In the United States, in *State Street Bank & Trust Co v Signature Financial Group Inc* 149 F 3d 1368, the Court of Appeals for the Federal Circuit held that patentable subject-matter includes any computer software which directs a machine

to produce a useful, concrete, and tangible result, regardless of its pertinence to a business method. This has opened the door for companies in the financial industry to protect their innovative software by patents.

In has been argued that in the European Patent Office, too, after the *IBM* decision (supra), "[i]t is possible that where a technical result is achieved, that is the ordering of something where there was disorder before, and can be expressed in general terms and produce a technical result which is useful, it may now be that with clever and somewhat disguised claims a method of doing business can be patented" (Larry Cohen "The Patenting of Software" [1999] *EIPR* 607 at 608).

Biological subject-matter

Plant and animal varieties: certain processes for their production

Article 27.3 of the TRIPS Agreement provides that plants and animals (other than micro-organisms), and essentially biological processes for the production of plants or animals (other than non-biological and microbiological processes) may not be patented. Countries should protect plant varieties by patent or an effective sui generis system, or by any combination of the two.

Accordingly, when one deals with a living thing the question arises — is it a *variety*? When one deals with a procedure for making living things, the following questions arise:

- ❏ Is it a *biological* process?
- ❏ If it is, is it *a macro*- or a *micro*-biological process?

Living things: varieties

In the 1950's and 1960's various countries introduced a special plant variety right. It was designed to cover the production of new plant varieties by standard methods such as cross-pollination, hybridisation, and grafting. A new variety has to be sufficiently distinctive in detailed characteristics (like shape, height, or colour), and it should be homogeneous and stable.

South Africa protects some plant varieties in terms of the Plant Breeders' Rights Act 15 of 1976.

The exclusion of "animal varieties" from patentable subject-matter in the TRIPS Agreement reflects the traditional view. However, the artificial manipulation of plant and animal forms, from the recombination of genetic elements in DNA to other biotechnological devices, has become an established industry. The European Patent Office (EPO) has, not without some hesitation, granted the following patents:

- in *Ciba-Cigy/propagating material* [1984] OJ EPO 112, for seeds dressed in defined chemicals to make them resistant to weed killers;
- in *Lubrizol/hybrid plants* [1990] OJ EPO 59, for a claim to hybrids produced in accordance with sequenced selection of parent plants; and
- in *Harvard/Oncomouse* [1990] OJ EPO 476, for a claim to a mouse or other non-human mammal genetically manipulated by activated onconogene (it was held not to be an animal variety).

A more restrictive stance has since been taken. The Technical Board of Appeal has excluded from the EPO system biogenetic inventions upon plants. (See, for example, *Plant Genetic Systems* [1995] OJ EPO 545, in which the Board refused to allow all claims to plants which have been transformed by genetic engineering to contain foreign DNA which could negate the effect of certain weedkillers.) Presumably, the same applies to the genetic alteration of animal species.

Macro- and microbiological processes

As we already indicated, essentially biological processes for the production of animals or plants cannot be patented. According to the *Guidelines for Substantive Examination* of the EPO, whether a process is "essentially biological" is a question of degree, the answer to which depends on whether the human intervention plays a significant part in determining or controlling the desired result.

Some examples: treating soil by technical means to suppress or promote plant growth is not excluded from patentability. By contrast, cross-breeding horses which involves merely selecting

for breeding and bringing together those animals which have certain characteristics is an essentially biological process and so not patentable. In *Lubrizol/hybrid plants* (supra), it was ruled that the method of proceeding was sufficient human intervention to constitute technical alteration of natural occurrences. Similarly, in *Harvard/Oncomouse* (supra), it was successfully argued that the oncogene had to be inserted artificially into a vector, which was then micro-injected into the recipient animal for incorporation into its genome. So the application succeeded, because it was seen as a product-byprocess, rather that a process claim (see further Comish op cit § 5-87 p 226).

It should be clear by now that the dividing line between micro- and macro-biological processes is fine. Comish (op cit § 5-88 p 227) writes that

> "... there is *no* scientific line between micro- and macrobiology. This is well-illustrated by the EPO's decision that a genetically manipulated plant variety is not as a whole the product of a miro-biological process, where the insertion of DAN (itself microbiological) is followed by breeding up of plants containing the genetic insertion...".

Methods of treating the human or animal body

A method of treating the human or animal body is that it is not deemed to be suitable for use or application in trade, industry, or agriculture. It is also thought to be against the public interest to grant a patent monopoly in respect of the medical treatment of people (and animals).

The terms "surgery" and "diagnosis" in section 25(11) of the South African Patents Act need no further explanation. But the term "therapy" should be construed widely to include non-surgical treatment designed to alleviate, lesson, or remove the symptoms of a disease, and preventative and curative treatments of any malfunction of the human or animal body. Only the method of treatment by surgery, therapy, or diagnosis actually carried out *on or in the human or animal body* is excluded from patent protection. The treatment of body tissue or fluids after they have been removed from the human or animal body, or the diagnostic methods applied to them (such as the

diagnostic testing of blood samples), are patentable subject-matter.

Note that a *product* which consists of a substance or composition and which is applied when these methods are performed may be suitable for use or application in trade, industry, or agriculture, and for this reason can be patented (section 25(12)). From this follows, then, that pharmaceutical products used in the treatment of humans and animals can be patented.

Only inventions consisting of substances or compositions for use in the treatment of the human or animal body are excluded from patentability. In *GI Marketing CC v Fraser-Johnson* 1996 (1) SA 939 (A), for example, the court held that the exclusion does not apply to “a plumbing arrangement including a toilet pan”.

“Ordre public” and morality

This consideration, long thought to be marginally important only, has become prominent mainly because of environmental concerns.

For example, *Harvard/Oncomouse* (supra) brought consideration to the fore. Here, the Board had to balance the advantages of cancer research and the suffering of experimental animals. The court also noted that there was little danger of environmental damage, as the animals in question could not reproduce their artificial genetic makeup. In the *Plant Genetic System* case (supra), the protection of the environment was accepted to fall within the scope of the notion of *ordre public*. The patent was refused, amongst other things, on the basis of the potential danger of environmental damage – crops could grow into weeds, and herbicide resistant genes might be spread to other plants.

One of the most interesting and emotive cases relate to human tissue – *Howard Florey/Relaxin* [1995] EPO 541. Here, the EPO granted a patent in respect of the genetic engineering of DNA taken from a pregnant woman's body to produce human H-2 relaxin. This was opposed on wide moral grounds, such as the patenting of human life, the abuse of pregnant women, and the

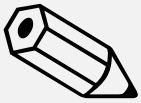
return to slavery. The objections were rejected. The court held that DNA can not be characterised as “life”. Rather, it is a substance carrying genetic information which can be used to produce medically helpful proteins.

The Biotechnology Directive sets a range of the parameters for patenting human and animal life forms. Article 6 states that patents will not be granted for –

- ❏ processes for cloning humans;
- ❏ processes for modifying the inherent characteristics of human genetic identity;
- ❏ using human embryos for industrial or commercial purposes; and
- ❏ processes for modifying the genetic identity of animals which are likely to cause them suffering without substantial medical benefit to humans or animals, and also animals resulting from such processes.

According to Cornish (op cit § 5-92 p 230), it is impossible to say whether these exclusions will seriously hamper valuable technological developments of the future.

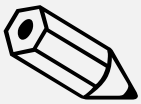
Activity 2.1



In your Patents Act –

- ❏ list the types of inventions and the fields of technology that have been excluded from patentability
- ❏ determine whether those exclusions conform to article 27.2 and 27.3 of the TRIPS Agreement

Activity 2.2



Vusi tells you that he has developed a machine to administer the cream more effectively. The machine has a gently rotating massage pad. An electric motor is used to set the pad in motion. The laws of gravity are then said to ensure the continued rotation of the pad until the skin has absorbed all the cream.

- ❏ Is Vusi’s machine an invention?

- ❏ Can Vusi patent the uses of the cream (to reverse the

ageing process, and to diagnose skin cancer)?

- ❑ Would your previous answers be any different if the rotation of the pad were controlled by a computer program, acting on calibrations of the moisture content of the skin of the person receiving the treatment?

After you have answered these questions, read the discussion in Tutorial Letter 201. This will give you feedback.

Discussion

Novelty

The first requirement which an invention must satisfy in order for it to be patentable, in terms of article 27.1 of the TRIPS Agreement, is that it must be *new*. This is known as the novelty requirement.

The South African Patens Act, taking its cue from the EPC, requires absolute novelty. Accordingly, section 25(5) states that an invention is "deemed to be new if it does not form part of the state of the art immediately before the priority date of that invention". Put differently, if the invention forms part of the state of the art before its priority date, it is *not* new. (For present purposes, the "priority date" of an invention is simply the date on which a patent application in respect of such invention is filed with the registry (see further Study Unit 3).)

To be new, then, the invention should differ from the state of the art in some respect. So the invention has to be compared with a certain body of knowledge, known as the "state of the art". It follows, therefore, that one first has to establish the prior knowledge against which the invention has to be evaluated.

The concept "state of the art"

The key term "state of the art" connotes the body of prior knowledge against which an invention should be tested for the novelty.

Section 25(6) of the South African Patents Act states:

> "The state of the art shall comprise all matter (whether a product, a process, information about either, or anything else) which has been made available to the public (whether in the Republic or elsewhere) by written or oral description, by use, or in any other way."

Accordingly, all disclosures to the public – no matter where, when, or how these were made – are part of the state of the art for purposes of the Act. In other words, there is no limitation in terms of the place, time, or manner of disclosure. This is why this is known as the requirement of absolute novelty.
Section 25(7)–(9) further extends the content of the term "state of the art":

> "(7) The state of the art shall also comprise matter contained in an application, open to public inspection, for a patent, notwithstanding that that application was lodged at the patent office and became open to public inspection on or after the priority date of that invention, if –
>
> (i) that matter was contained in that application both as lodged and as open to public inspection; and
>
> (ii) the priority date of that matter is earlier than that of the invention.
>
> "(8) An invention used secretly and on a commercial scale within the Republic shall also be deemed to form part of the state of the art for the purposes of subsection (5).
>
> "(9) In the case of an invention consisting of a substance or composition for use in a method of treatment of the human or animal body by surgery or therapy or of diagnosis practised on the human or animal body, the fact that the substance or composition forms part of the state of the art immediately before the priority date of the invention shall not prevent a patent being granted for the invention if the use of the substance or composition in any such method does not form part of the state of the art at that date."

These provisions are not always easy to understand.

Section 25(7) states that the contents of a pending patent application (a patent application that has not yet been granted) will also form part of the state of the art, even if that application was *not yet open for public inspection* (and so has not been disclosed to the public) on the date on which the novelty of a particular invention has to be evaluated. Remember that the pending application referred to in this subsection is *another* application, not the one in respect of the invention under consideration. Note that the priority date of the pending patent application forming part of the state of the art should be earlier than that of the invention under consideration. Also, when a court has to determine whether the novelty of an invention has been destroyed by the contents of an earlier pending application, it adopts a 'whole contents' approach: it compares the claims of the later application with the disclosure or contents of the earlier one, not merely with the claims of the earlier application (*McKelvey & others v Deton Engineering (Pty) Ltd & another* [1997] 1 All SA 569 (A)).

Subsection (8) of section 25 is less complicated. An invention used *in secret* usually does not form part of the state of the art – it is not available to the public. But if it is used in secret *and on a commercial* scale in South Africa (in this instance there is a geographic limitation), it is treated as part of the state of the art.

Section 25(9) deals with a substance or a chemical composition which is used for the treatment of humans and animals. Even if this substance or composition as such was already known, its use for such treatment may still be new. So it can still be patented, for example, by means of patent for a new medicine or drug in which the substance or composition is the active ingredient. (In our earlier discussion of patentable subject-matter, we noted that although a *method* of treatment cannot be patented, a drug or remedy used in the course of treatment can. But remember that an invention should not only be new – it should also not be obvious (see further the discussion below). So it may happen that the new use of the substance or composition for medicinal purposes is obvious, in which case a valid patent cannot be obtained.

The meaning of some key phrases in these provisions will now be canvassed.

Some courts in England have considered the meaning of this phrase, albeit in the context of section 101 of the Patents Act 1949. It may also be instructive to look at the intention of the drafters of the European Patent Convention.

In *Fomento SA v Mentmore Manufacturing Co Ltd* [1956] RPC 87 (CA), the court held that the public had been given possession of an invention (thus destroying its novelty) where knowledge about it had been communicated to a member of the public in such a fashion that she was lawfully free to use it as she pleased. Subsequently, in *Bristol Myers Co's Application* [1968] FSR 407, it was held that communication of an invention to a single member of the public, without the communicator in some way inhibiting the person who receives the information as to publishing information about it, was sufficient to render the invention available to the public.

Where the communication of knowledge is in the nature of a *general non-confidential disclosure* (such as in a written document – like a report or publication – or by way of the spoken word, like in a lecture), it is made available to the public if the information, wherever in the world it is communicated, is accessible to the public at large. However, where the communication of knowledge is not in the nature of a general disclosure, but is a *non-confidential disclosure to specific persons*, such a disclosure would still amount to a disclosure to the public, if no inhibiting fetter or prohibition is placed upon further disclosure or communication of the information. Again, it makes no difference where the communication takes place.

So a confidential or secret disclosure to a member of the public will not destroy the novelty of an invention, but a disclosure to the general public or to specific persons without ensuring that the confidentiality of the information is protected, does destroy the novelty of an invention. Put simply, if you tell someone else the details of a new invention, without asking that person to keep the information confidential, the information has been made available to the public. It does not matter where in the world the invention was made available to the public – absolute novelty is required.

What happens where the novelty of an invention is destroyed by disclosure not by the inventor and for which she is not to blame? In such circumstances such disclosure should be excused, of course. Accordingly, for example, section 26 of the South African Patents Act states:

> "A patent shall not be invalid by reason only of the fact that the invention in respect of which the patent was granted or any part thereof was disclosed, used or known prior to the priority date of the invention –
> (a) if the patentee or his or her predecessor in title proves that such knowledge was acquired or such disclosure or use was made without his or her knowledge or consent, and that the knowledge acquired or the matter disclosed or used was derived or obtained from him or her, and, if he or she learnt of the disclosure, use or knowledge before the priority date of the invention, that he or she applied for and obtained protection for his or her invention with all reasonable diligence after learning of the disclosure, use or knowledge; or
> (b) as a result of the invention being worked in the Republic by way of reasonable technical trial or experiment by the applicant or patentee or the predecessor in title of the applicant or patentee."

Secret use

It follows from the above, then, that secret use of an invention (other than on a commercial scale) does not render the invention part of the state of the art – the invention is not made available to the public. So such prior secret use will not destroy the novelty of an invention. But remember that where such secret use is on a commercial scale in South Africa, the invention becomes part of the state of the art, and its novelty is destroyed (section 25(8)). The meaning of the phrase 'use on a commercial scale' has not been judicially defined. Whether there has been use on a commercial scale will be determined by the nature of the relevant invention and the particular circumstances of each case.

Note also the provision for reasonable technical trials in section 26(b) of the South African Patents Act.

Anticipation

To determine whether an invention is new, it must be compared with the state of the art as it existed immediately prior to the priority date to which the invention is entitled. If there is *a substantial difference* (if an *essential feature* of the invention is not part of the state of the art), the invention will be regarded as new. Where an invention cannot be regarded as new, it is common usage to say that the invention has been *anticipated* through lack of novelty.

In South Africa, the Patent Office is a non-examining office. From this follows that when an application is made for a patent, its novelty is not investigated, since applications are examined only for compliance with formal requirements. (Novelty and anticipation are examined only when an action is instituted by a third party for the revocation of a patent or where the validity of a patent is challenged. See further Study Unit 3.)

Where one tests for anticipation on the basis of information contained in a prior document (a document made available to the public prior to the priority date of the relevant application), these principles apply:

- ❏ The question is primarily one of construing the earlier document and the claim(s) of the patent allegedly anticipated.

- ❏ This is followed by comparing the document and the claim(s) so construed, to determine whether there is any substantial difference.

- ❏ The prior document must be construed as at the date of its publication, to the exclusion of information which later came to light.

- ❏ Extrinsic evidence is admissible, but only to prove the meaning of technical terms on the state of the art at the date of publication of the prior document, so that it may be properly construed and applied.

- ❏ In construing the documents and claim, the court will look to the claim's substance and not its form.

Anticipation does depend upon textual identity. It is not necessary for what is described in the anticipating document to have been used before it can constitute an anticipation.

- ❑ In the vocabulary of patent practice, the features of an invention as embodied in the claims are referred to as the *integers* of the invention.

- ❑ To establish anticipation, the anticipating document should –
  - set out at least the essential integers of the claimed invention;
  - identify or make perceptible the same, or substantially the same, invention; and
  - enable the same, or substantially the same, product to be made from the descriptive matter contained such document.

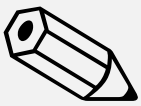
- ❑ If the description in the prior document differs from the claimed invention even in a small respect, as long as the difference is real (such as the non-recital of a single essential integer), there is no anticipation.

- ❑ Where two processes are the same or substantially the same (in other words, their integers correspond), the fact that they have a different purpose is irrelevant when one tests for anticipation.

- ❑ The invention challenged must be described with reasonable certainty in the anticipatory prior publication relied upon before it can be said that the invention is not new Absolute novelty entails that anticipation cannot be established through the synthesis of a number of non-related publications into a mosaic that purportedly covers the integers of the invention. In other words, the publication must be a single publication or a series of publications forming an integrated whole.

Finally in respect of novelty, note that non-compliance with the novelty requirement is a ground for the revocation of the patent. See further Study Unit 3.

Activity 2.3



In your Patents Act –

- ❑ determine the test to decide whether an invention is new
- ❑ determine the body of knowledge against which an invention is tested for novelty
- ❑ determine where the novelty of an invention is destroyed in circumstances where the inventor is not to blame
- ❑ determine whether provision is made for technical trials

Reading 2.1

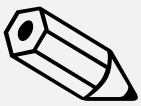
Read *Levin v Number Plates and Signs (Pty) Ltd* 1942 CPD 412. Ask yourself the following questions when you read this decision:

- ❑ Under what circumstances did the applicant show his invention to the public?
- ❑ What did the court rule in respect of these circumstances?
- ❑ Was the novelty of this invention destroyed?

Reading 2.2

Read *Gentiruco AG v Firestone SA (Pty) Ltd* 1972 (1) SA 589 (A). Ask yourself the following question when you read this decision: Can a series of publications anticipate an invention for purposes of determining its novelty?

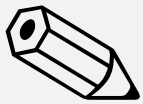
Activity 2.4



Thandi wants to know whether she can present a paper at a conference on new computer software, to be held in Mauritius. She intends using the computer program that she has developed to control the manufacturing Vusi's cream as one of the examples given in her paper. She also wants to publish her paper in a scientific journal, published in the Ukraine for a select readership. Thandi and Vusi approach you for legal advice. The want to know –

- ❑ Will reading the paper at this conference constitute "disclosure to the public"?
- ❑ Will your advice be any different if Thandi should also ask the organizers not to include her paper in the published conference proceedings?
- ❑ Will your answers to the previous two questions be any different if Thandi and Vusi were to tell you that they do not want to patent the cream or process in Mauritius?
- ❑ Will publishing her paper in the scientific journal constitute "disclosure to the public"?

Activity 2.5



Thandi wants to give a few thousand sachets of the cream to Mo Inc, an American corporation, to test the effectiveness of the alleged anti-ageing properties of the cream by means of human trials in the United States of America. Vusi also wants to give a sample of the cream to Professor Moodley, an acclaimed biochemist at the University of Bombay, to determine the effectiveness of the cream in the diagnosis of cancer.

- ❑ Will Thandi's proposed action destroy the novelty of the invention?
- ❑ If so, is there anything she can do to make sure that it does not?
- ❑ Will Vusi's proposed action destroy the novelty of the invention?

Discussion

Inventiveness

A number of judicial tests have been formulated to establish the presence or absence of an *inventive step*. The best known is what is called the *Cripps* question, first postulated in *Sharp and Dohme Inc v Boots Pure Drug Co Ltd* (1928) 45 RPC 153 at 173:

> "Was it for all practical purposes obvious to any person skilled in the field to which the invention pertains, in the state of knowledge existing at the date of the patent in the literature then available to him, and in the light of his own general knowledge and experience, that he could arrive at the same result as did the inventor?"

Section 25(10) of the South African Patents Act follows the EPC definition of an inventive step:

> "Subject to the provisions of section 39(6), an invention shall be deemed to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms, immediately before the priority date of the invention, part of the state of the art by virtue only of subsection (6) (and disregarding subsections (7) and (8))."

At this stage, note the following about section 25(10):

- ❏ The state of the art against which the invention has to be tested for inventiveness has a more restricted content than that used for testing for novelty. The matter referred to by section 25(7) and (8) is excluded: inventions which have been used in secret (even though such use was on a commercial scale) do not form part of the state of the art, nor do pending patent applications which are open for public inspection, even though they may have an earlier priority date.

- ❏ The reference to section 39(6) concerns so-called patents of addition. (A patent of addition is one in respect of an invention that is an improvement on, or a modification of, or an addition to a main invention. Such patent is added or connected to the main patent) Section 39(6) provides that it will not be necessary for a patent of addition to be inventive when it is compared – with the main invention.

- ❏ Section 25(10) refers to 'a person skilled in the art'. So the question is whether the invention under consideration is obvious to such a person, given her stock of knowledge. Effectively, then, the court places itself in the shoes of such person to decide the question of

obviousness.

A synthesis of the case law reveals the following stages in the inquiry whether an invention contains an inventive step (see *Roman Roller CC & another v Speedmark Holdings (Pty) Ltd* 1996 (1) SA 405 (A) at 413; *AECI Explosives and Chemicals Ltd v Ensign-Bickford (South Africa) (Pty) Ltd & others* 1997 (3) SA 250 (T) at 261):

- ❏ the art to which the invention relates is determined
- ❏ the state of the art at the relevant time is determined
- ❏ who should be regarded as a person skilled in the art to which the invention relates is determined
- ❏ the stock of knowledge of such person is determined
- ❏ it is determined such person with such knowledge, would, in the light of such knowledge and the state of the art, when considering the same problem which the inventor has faced, regard the step taken by the inventor as obvious

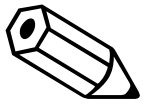
(Compare *Ensign-Bickford (South Africa) (Pty) Ltd & others v AEC! Explosives and Chemicals Ltd* 1999 (1) SA 70 at 80.)

This test is qualitative, not quantitative. The Act does not require a particular, measurable degree of inventiveness, nor a particular, measurable increase in skill. As long as the invention is regarded as not obvious, it is inventive.

The test also involves applying an objective standard – the court has to decide, on the basis of all the available information, what knowledge a person skilled in the art would probably have, and whether that person will regard the invention as obvious in the light of this knowledge and the state of the art. The subjective opinions of expert witnesses cannot usurp the exercise of this judgement by the court.

A final remark: as with novelty, the inventiveness of an invention is investigated only in the event of proceedings for the revocation of the patent, or for infringement, where the validity of the patent is contested. (Revocation is discussed in Study Unit 3.)

Activity 2.6



In your Patents Act –

- ❑ determine the test to decide whether an invention involves an inventive step
- ❑ determine the body of knowledge against which an invention must be tested for inventive step

Discussion

Utility

By "utility" is meant that the invention must work. To establish whether an invention works, one looks at the stated purpose of the invention and asks – when operated according to the inventor's instructions as set out in the specification, does the invention fulfil its stated purpose?

In *Lane Fox v Kensington and Knightsbridge Electric Lighting Co* [1892] Ch 424 (9 RPC 221), the court stated:

> "'Useful for what?' is a question which must always be asked, and the answer must be 'useful for the purposes indicated by the patentee'."

The purpose of an invention appears from the specification, So the question is always what the specification means. The directions contained in the specification must be interpreted in the light of the knowledge of a specialist who would work with the invention. The specification should be read by the addressee with a mind willing to understand, and not with the unreasonable desire to misunderstand, or not to understand at all. In other words, the addressee must use her intelligence and knowledge in an attempt to interpret the directions in the specification in a reasonable manner *(Selero (Pty) Ltd v Chauvier* 1982 (2) SA 208 (T)).

The South African Patents Act does not require utility as such. Section 25(1) merely states, as indicated earlier, that an invention should be capable of being used or applied in trade, industry, or agriculture. However, the Act does state that a

patent can be revoked if the invention "cannot be performed, or does not lead to the results and advantages mentioned in the specification" (section 61(1)(d)). This boils down to an assertion that the invention is "not effective to produce the result aimed at", or "not useful for the purpose indicated by the patentee".

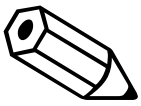
To be useful, it is not necessary that the invention be a commercial success. But where the invention aims at producing a better or cheaper method of production, the measure of its commercial success may well be a factor relevant to determine whether it satisfies the requirement of utility (see *B-M Group (Pty) Ltd v Beecham Group Ltd* 1980 (4) SA 536 (A) at 550–551).

Reading 2.3

Read *Frank & Hirsch (Pty) Ltd v Rodi & Wienenberger Aktiengesellschaft* 1960 (3) SA 747 (A). Ask yourself the following questions when you read this decision:

- ❏ What meaning does the court ascribe to the term "useful"?
- ❏ What level of skill is required of the addressee?
- ❏ What is the position where the addressee must select alternative embodiments of the invention, of which embodiments one is useful and the other is not?

Activity 2.7



Vusi has done some market research and discovered that the potential market for his cream is very small. He is worried about the effect of this lack of marketability on the validity of any patent he may obtain for his cream.

- ❏ Does Vusi's invention have to be commercially viable in order to be patentable?
- ❏ What will be taken into account to determine whether Vusi's cream is useful?

After you have answered these questions, refer to Tutorial Letter 201 for feedback.

Conclusion	You should now appreciate that a patent protects an invention – generally, a new solution to a technical problem. Not all inventions can be considered for patent protection – there are various limitations to the scope of the category of patentable subject-matter. If an invention falls into this category, it has to meet three requirements – the invention should be new, it should contain an inventive step, and it should be useful.