The Language of Patents
A Typology of Patents, with particular reference to Machine Translation

1. Introduction
A typology study of patents – an attempt to define what is different about the language of patents – was part of the author’s feasibility study on the machine translation of patents, performed for the Commission of the European Communities. 
This very abridged report of the study, published by permission of the Commission, will outline the purpose and contents of a patent and the various types of patent translation (part 2), before identifying the typical international patent structure (part 3). An introduction to patent style in part 4 is followed by a more detailed analysis in part 5, dealing primarily with translingual features.

1.1 The objectives of the study
The study was intended to show how far typical patent features recur, not merely within the patents of a given country, but across the boundaries of the 3 languages concerned in the study, German, French and English (De, Fr, En). While most of the patents considered were from France, the Federal Republic of Germany and Britain (FR, BRD, GB), attention was also given to other patents in these languages, particularly United States patents.
A study was needed because in computer-aided translation the most intractable problems have usually derived not from the subject field of a document, but from the document type: technical terms are relatively easy to feed into the system, but most translation errors occur in function words or are stylistic. They are the things which the professional translator usually translates without thinking, and which therefore receive little attention, if any, in conventional dictionaries or term banks.
One consideration, then, is that if the style and syntax of a document type (in this case, patents) are fairly consistent across language boundaries, this should facilitate computer-aided patent translation. Another consideration is that if the style, syntax and macrosyntax are highly consistent both within and across language boundaries and are also distinct from those of other documents, certain special programming may be worthwhile. This would enable the system to identify the text, or portion of text, and to translate accordingly.

2. Background to Patents and their Translation
2.1 The purpose of patents
A reminder of what patents are, or at least of what they are not, has been given by a writer of patents, Mr. E. W. E. Micklethwait. Here he was speaking of the patent claim, but his statement is equally true of the patent which includes that claim.

"The test of a claim is not whether it produces a pleasant sensation, reminiscent of silk dresses rustling in the Mediterranean moonlight, or a symphony conducted by Toscanini, or whether it produces an unpleasant sensation, like a visit to the headmaster’s study, or the putrefying corpse of a leprous polecat (although such sensational claims may occasionally be encountered), The test of a claim, as of anything else, is fitness for its purpose . . ."

Patents are intended to be an incentive to innovation. The patent system and philosophy vary from country to country, but essentially a patent is a temporary monopoly which rewards an inventor, not so much for making his invention as for disclosing it. A patent specification may seem to be only an unusually clumsy technical document, but in fact it is a legal document: a social contract which describes the invention in such a way that the public can use it when the patent dies, but which, until that time, gives the patentee as large and safe a monopoly as possible. The patent specification includes a description and claims. The extent of the monopoly is defined by the claims. However, the claims may be interpreted in the light of the description, and so the description, also, must be written with the possibility of a legal dispute in mind. The patent will include bibliographic data (notably a search report) and perhaps drawings. Usually a brief abstract is supplied "as a scanning tool for purposes of searching", that is, not for legal reasons but purely for information. The language of the abstract may, however, differ little from that of the claims if it is written by a patent practitioner (patent attorney/agent/engineer etc.).

2.2 Types of patent translation
These, discussed in detail in the study, may be summarised as follows.
3. The Basic International Patent Structure

Individual patent writers naturally vary, as do technologies and the needs of patentees. However, possibly because international patenting is so extensive, a basic international patent structure is discernible in a large majority of GB, FR and BRD patents and indeed in many other Western European and North American patents. “Flags” (stereotyped phrases) and changes in style (word frequency; phrasings typical or atypical of “normal” language) tell readers rapidly in what section of the document they are. The tendency towards harmonisation is likely to increase, particularly in view of the Patent Cooperation Treaty and European Patent Convention, which came into force on 1 June 1978 and created “international” applications and regional European applications respectively.

The following outline of the basic structure uses the terminology of the Patent Cooperation Treaty, where available and acceptable.

Sections may start with headings like those given here, but are usually signalled only by the stereotyped “section flags” (see Part 3.2, “Structure markers”). Not all sections will appear in a given patent, but within its description those which do occur can be expected to conform to this sequence. Less common sections are written in brackets.

A typical description exhibits a classic reiterative, or theme-rheme, pattern. Each section constitutes the theme for the next section, in one of up to 5 stages in a progression from the general to the particular. Title - Technical Field - Background Art - Disclosure of Invention - Detailed Description (6 stages if the Drawings are counted).

3.1 Title of the invention

3.2 (Formal introduction or heading)
This may include the patentee and other details.

3.3 Technical field

3.4 Background art

3.5 Disclosure of invention

3.6 Brief description of drawings

3.7 Detailed description of the invention

4. Introduction to patent style

4.1 Formal style

4.2 Mixed “modes of discourse”

4.3 Present tense

4.4 Long sentences
These long sentences can be very complicated, perhaps especially in En and De. Some German writers make frequent use of “Ver- schachtelung” (extended attributes). All 3 languages use numerous dependent clauses.

4.5 Vocabulary part small, part vast

A final striking feature of patent style is the plethora of numbers and other symbols. These begin with the bibliographic data and continue throughout, with line, column and page numbers, reference signs, quantities, units of measurement, claim numbers, table and figure titles, structural formulae and so on. They sometimes cause problems.

5. Patent-Specific Features

The more patent-specific features of patent style fall into 3 groups. The first group represents the first interest quoted above (the legal user): “device dispositif Einrichtung member organne Organ apparatus appareillage Vorrichtung

The last group provides signposts for all readers: “free feature(s) dispositif Einrichtung member organne Organ apparatus appareillage Vorrichtung

The claims are a special case of list. They are effectively (or even actually) the predicate of a sentence beginning “What is claimed is”, even where their heading is only “Claims”. “Revendications”, “Patentansprüche” etc. Lists within claims are also common. They are usually lists of ingredients (i.e. mainly nouns) or of actions (finite verbs, gerunds, verbal nouns); but in the case of the “Merkmalsanalyse” or structure markers (major “section tags” and minor “repeaters” which lead the reader through the patent). The need for

5.1 The need for breadth

5.1.1 Patent “semi-primitives”

A patent “semi-primitive” is halfway to a semantic primitive. It arises from the combination of a patent generic noun or broad term (what Moskovich’s) terms a patent “pronoun” – “means”, “device”, “system” – with a function indicator. The latter is usually a gerundive or verbal noun: “fastening means” “adapted to rotate”

5.1.2 Other breadth forms

A selection of other broad words and phrases often found in 2 or more of the 3 languages will be given in list form. It must be remembered that these are preferred by some draftsmen in some situations, but are not universal:

- “comprising” “comportant”, “including”, “comprenant”, rather than “consisting of”.
- “or the like”, “oder dgl.”, “ou similaire”, rather than “etc”, “and so forth”, “usw.”.
- “fluid”, “liquid” (not in De).
- “container”, “vessel”, “Behälter”, rather than “cup”, for example.
- “box-like structure”, “not box”.
- “limb”, “Schenkel”, where “arm” or “leg” would be too narrow.
- “rotatable”, “drehbar”, “capable of rotating”, “adapted to rotate” or “which can rotate”, not merely “rotating”. Likewise “interlockable”, “ampleable”; “connectible” for “connected”. (This misuse of “adapted” is said to have led, in a patent relating to henhouses, to a claim for perches of special construction “on which the chickens are adapted to sit.”)
- “a plurality of”, “Vielzahl”, “Mehrzahl” (to cover 2 or more), not “several”. However, “mehrere” and “plusieurs” also appear.
- “being/étant” or other present participle, or “wobei”, all to avoid implying a causal construction (“..., X being provided with”; “a pin being located in the hole and projecting from the wall”).
- “substantially” meaning, “approximately”; “generally”, “broadly”.
- “adapted” is said to have led, in a patent relating to henhouses, to a claim for perches of special construction “on which the chickens are adapted to sit.”

5.1.3 The need for precision

- Definition of terms: a term may be briefly defined, to restrict its meaning within the patent.

Said: Note that the definite article can be a connector in patents, in that it is often – not always – used only if its noun has already occurred or can safely be taken for granted. However, some writers nitpick, not to rely on this, but write “the said” or “the aforesaid” (“ledit”) or even “said” alone, omitting the article altogether. Occasionally “genannt” is used in a similar way. Phrases like “a said conductor” are also found.

- “which”, “welcher”, “et qui” are used often; “... a respective rib projecting from the side face, which rib is ...” instead of, say, “the said rib being”; “into which channels the pins can be inserted”.
- “respective”: “a respective rib”.
- “extending” “sich erstreckend”.
- further definition of “face”, “end”, “side” etc: “end face”, “face superficie”, “Lingüsete”.

5.1.4 The need for exactness

- “reasonable”, “einen Weg in die Welt”, “raisonnable”, “reasoner”.
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5.2 Language typical of but not peculiar to patents

This (mainly individual words, not phrases) appears to be the normal language of technical description, except in respect of word frequency. Only a few examples will be given.

To save space, certain concepts will be given in only one grammatical form, for example a verb form (“connect”), although they often occur in other forms (“connection”, even “connectible”).

Some of the more notable aspects are:

5.2.1 Construction
- names of major objects (especially apparatus and machines) (“reactor”, “moteur”, “Pumpe”)
- their parts and details, especially
- containers
- openings
- passages.

5.2.2 Function
- function proper (“mélanger”, “Schalten”, “dichtien”, “control”, “neutraliser”, “combustion”), in which an important subgroup is forms of association (“bloquer”, “abut”, “fit”, “solidarisé”, “neutraliser”, “combustion”), in which an important subgroup is

5.2.3 Substances
- names of chemicals and materials (“Äther”, “Kunststoff”, “titane”, “fluid”, “air”, “hydrocarbure”).

5.2.4 Geometry, motion, position

5.2.5 Degree of a variable

5.2.6 Properties of an invention or the prior art

5.2.7 Names etc.
Proper nouns, addresses, Trade Marks.

5.2.8 Non-verbal features
Layout, punctuation, order of patent sections. (It has been ques-
tioned whether these non-verbal features are part of language, or belong in part 5.2 at all, but the author inclines to the view that most things which affect meaning are part of language, and that, for example, layout has developed as a visual representation of the rhythm and macrosyntax of text.)

5.3 Structure markers
The underlying structure of a patent is almost invariably signalled by recognised structure markers. These show the reader at a glance where he is in a patent, and they may be major or minor.

5.3.1 Major markers: “section flags” (or “openers”)
These open various sections of the patent. The technical field may be signalled by “Die Erfindung betrifft” “L’invention est relative à” “The invention relates to” “Es ist bekannt” “On sait que” “Conventional”; the disclosure of the invention by “Erfindungsgemäß” “L’invention a pour objet” “According to the invention”, and so on.

5.3.2 Minor markers: “repeaters”
Certain words or figures occur with more frequency in particular sections. For example, reference numerals appear only in the de-
tailed description or in claims; properties like “simplicité” occur often in the discussion of the background art and of the invention’s advantages; “preferably” or “bvorzugs” are commoner in the recital of sub-claims.

6 Conclusion
The typology study of patents reported here was performed only to determine linguistic characteristics of patents which affect machine translation. However, it is felt that the regular patterns and the similarities between English, French and German patents reveal-
ed by the study may be of interest to translators and to specialists in other fields. Certainly the author appreciated the opportunity to take a fresh look at what had been her bread and butter for many years, for when this notoriously dull text type was studied for the purpose of that still less loved thing, machine translation, the results were unexpectedly interesting. Perhaps there is substance in the view that machine translation, precisely through its failures, may be, of all processes, the most revealing about language and the way it works.

Notes and References
2) Ibid., Rule 5.1.i.
3) Ibid., Rule 5.3.i.
7) F.A. CLIFFORD, quoted in Lawson, V. (1978) Patents, the translation of a social con-
8) Colours are very rarely mentioned.
9) Conclusion of all expert groups consulted in Starkloff, B. et al. (1978): Investigation of the present and future use of patent literature, CEC DDobb (1978), EUR 5525 EN.
10) Personal communication from patent practitioner who prefers to remain anonymous.
11) Personal communication from patent practitioner who prefers to remain anonymous.
15) Patents Cooperation Treaty (PCT), Rule 5.1.ii.