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Abstract The objective of this study was to evaluate commercial grammar checkers in order to set the baseline for Scarrie. There are no grammar checkers for the Scandinavian languages, and the evaluation was directed towards English (Grammatik 6) and French (Le Correcteur, and Hugo Plus). For each language, a couple of hundreds of test sentences with (correct and incorrect) paraphrases were constructed. Le Correcteur 101 had more false alarms than Hugo Plus, but less missing hits. Grammatik 6 had the largest rate of false alarms. All of the three grammar checkers were able to solve agreement problems and none of them was able to handle valency errors, among them problems with prepositions. Verb phrases in the limited sense, though, were mostly managed properly. The grammar checking capabilities of the three checkers of the study seem to set a reasonable baseline for Scarrie. An additional aim should be the handling of some types of valency relations.

Executive Summary

The main objective of this study was to evaluate commercial grammar checkers available on the Scandinavian market in order to set the baseline for the linguistic competence of the Scarrie grammar checking module. There are no grammar checkers for the Scandinavian languages, and the evaluation was directed towards English (Grammatik 6) and French (Le Correcteur, and Hugo Plus). French, as opposed to English, has a rich morphology and the checking of agreement relations becomes vital in a French grammar checker, an aspect just as important for the Scandinavian languages. The investigation focuses on specifying what kinds of constructions they can handle. It is concentrated on their ability to recognise correct and incorrect sentences, and on their ability to suggest corrections. Only context dependent errors are addressed in the study, not context independent ones such as spelling and end of line hyphenation.

The grammatical approach of the investigation is based on traditional phrase grammar and functional grammar. Test sentences were constructed in order to test the ability of the grammar checkers to recognise correct and incorrect sentences, and to correct the context dependent errors. For English, as well as, for French, a couple of hundreds of test sentences with (correct and incorrect) paraphrases were constructed.

Le Correcteur 101 had more false alarms than Hugo Plus, but less missing hits. Generally, false alarms are experienced as more annoying by the user than missing hits. However, Grammatik 6 had the largest rate of false alarms. The rate of missing hits is somewhere between the rates of the other two grammar checkers.

In comparison with Le Correcteur, Hugo Plus was more limited in its ability to recognise incorrect sentences. It could handle some specific issues, but related problems passed unnoticed. In particular, the program recognised orthography errors and missing *ne* or *pas* in negated sentences. It handled the subjunctive versus the indicative mood, and word form errors when the following word started with a vowel. Furthermore, Hugo Plus recognised and corrected problems with the conditional verb form in *si*-clauses, comparison of adjectives, word category errors in premodifiers to adjectives, and, as already mentioned, different types of agreement errors. Hugo Plus handled agreement errors between subjects and complements (adjectives and participles), between premodifiers and head nouns, between head nouns and postmodifiers, between objects and participles, and between subjects and finite verbs.

Besides orthography and agreement errors, Le Correcteur was able to handle errors concerning the subjunctive in *que*-clauses and which auxiliary verb to use. Moreover, some verb construction errors were identified, such as missing objects and missing verb particles. Word order problems on the clause level were recognised as well together with most errors in adverb phrases.

Grammatik 6 differed from the other two programs in its ability to properly address pronoun case errors and article usage. Compared to French, English has a less complicated verb construction system. It was also much better on handling voice problems and style problems.

The three grammar checkers seem to use different strategies for recognising and correcting errors. Grammatik 6 addresses style and usage problems, which the other two pro-

grams don't. The speciality of Le Correcteur 101 was its ability to recognise incorrect sentences. It seems to have a well developed pattern recognition function. Hugo Plus on the other hand showed a better ability to correct the errors that was found.

All of the three grammar checkers were able to solve agreement problems and none of them was able to handle valency errors and problems with prepositions properly. Verb phrases in the limited sense, though, were mostly managed. Capital letters in sentence beginnings were recognised by all but corrected only by two of the programs.

The grammatical competence of the three grammar checkers of the study seems to set a reasonable baseline for the Scarrie grammar checking module. An additional aim should be the handling of certain types of valency relations, among them the usage of prepositions.

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A Study of Three Commercial Grammar Checkers

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1 Introduction

This study is an evaluation of three commercial grammar checkers available on the Scandinavian market: Grammatik 6 (English), Le Correcteur (French), and Hugo Plus (French). The evaluation has been carried out as a task in the SCARRIE project and will serve as a baseline for what the SCARRIE grammar checker module must be able to achieve. The focus is on the coverage of grammar problems, on the ability to recognise and correct grammatical errors. The key question is what grammatical problems can or can not be handled by the grammar checkers. The evaluated grammar checkers have other features as well. Style checking facilities are of interest, while context independent functions are not addressed at all (e.g. spell checking, translation).

The grammatical approach is based on traditional phrase grammar and functional grammar. Test sentences were constructed in order to test the ability of the grammar checkers to recognise correct and incorrect sentences, and to correct the context dependent errors.

In the next chapter the objectives are stated, followed by a short presentation of the evaluated grammar checkers. Chapter 4 deals with the evaluation strategy. The results of each grammar checker are presented in the following three chapters, each chapter starting with a closer look at the program, such as its interface, and available settings. The report ends with a chapter summarising and comparing the most important results.

2 Objectives

The main objective is to evaluate the coverage of three commercial grammar checkers that are on the Scandinavian market. The investigation focuses on specifying what kind of constructions they can handle.

The evaluation of the grammar checkers is concentrated on their ability to recognise correct and incorrect sentences, and on their ability to suggest proper corrections. Only context dependent errors are addressed, not context independent ones such as spelling and end of line hyphenation.

3 Evaluated Grammar Checkers

Three grammar checkers, available on the Scandinavian market, were tested:

- Grammatik 6 (English) is monolingual, made in the United States, and is for IBM compatible computers.
- Le Correcteur 101 (French), also monolingual, is made in Canada for the Macintosh operating system.
- Hugo Plus is a bilingual grammar checker (English, French) and includes a translation dictionary. Hugo Plus is available for both the IBM compatible computers and the Macintosh operating system. In this study only the French grammar checker was evaluated. Hugo Plus was developed in France.

Hugo Plus and Grammatik were tested on an IBM computer with a Pentium processor and with Windows 95 operating system. Due to potential compatibility problems, neither Grammatik 6 nor Hugo Plus were integrated with the word processor installed (Microsoft Word 7.0 within the Office 95 package) but were run as stand-alone programs.

When run as a separate program, certain functions are missing that otherwise would be supplied by the word processor. The ability to save the text at any time, not only when you close the window or quit the program, may be lost as well as the possibility to copy or cut larger pieces of text.

Le Correcteur on the other hand cannot be integrated with a word processor. It is a stand-alone program and was evaluated on a Macintosh computer with the 68040 processor with System 7.5.5 installed.

4 Evaluation Strategy

The performance of a grammar checker is dependent on two major features: the first to recognise and the second to correct grammatical errors in sentences. An error is considered grammatical, if it depends on the context, and if one has to go beyond a single word to correct it. In order to test the grammar checkers, correct and incorrect sentences were constructed covering a variety of context dependent problems.

4.1 Grammatical Approach

The study is based on a phrase grammar approach (as is the SCARRIE project). However, the traditional functional grammar is used as well, since many grammar rules are formulated according to functional concepts and these concepts are used by the evaluated grammars. The basic concepts used are the traditional word categories and morphological and grammatical features, phrase types and syntactical functions.

The verb phrase may be seen as the key constituent in most clauses. It spans over much information, so it has been broken down into smaller and more easily handled concepts: the verb, the verb elements, and the verb phrase in the limited sense. A verb phrase in the limited sense consists of a sequence of verbs (one or more with or without particles). For instance, the present progressive is a verb phrase in the limited sense. Verb particles are considered as belonging to the verb.

Every verb takes a number of elements (or complements), which may be of a variety of phrase types and which may fill different functions. Each phrase type has its own potential errors and is handled separately in the evaluation and in the presentation of the results. Agreement between phrases is also treated separately, while the connection between a phrase type and its function (in relation to the verb) is primarily perceived as a phrase problem. One exception has been made though: pronoun case problems are discussed as a verb element problem rather than a noun phrase issue.

A clause level is used for gathering problems at the clause and sentence levels such as agreement between clause constituents, word order and punctuation. Split words and concatenated words are also referred to the clause level, because these problems can occur anywhere in the sentence.

4.2 Recognising Errors

Grammar checkers can be evaluated according to their abilities to recognise correct and incorrect sentences. There are four possible outcomes of the recognition phase:

- i) ability to recognise correct sentences
- ii) failure to recognise correct sentences (so-called false alarms)
- iii) ability to recognise incorrect sentences
- iv) failure to recognise incorrect sentences (so-called missing hits)

Style matters are not classified within this scheme since these problems can be both correct and incorrect depending on the context in which the phrase appears rather than the context provided by the sentence only. A program is able to recognise style problems if it makes the user aware of phrases that are inappropriate according to the chosen style. Only difference between formal and informal writing was evaluated.

4.3 Correcting Errors

The ability to correct errors was evaluated by studying the recognised incorrect sentences (i.e. the third category above). An error is considered properly corrected when the program is able to present an appropriate correction of the error. Hence, a style problem is appropriately handled by the program if it presents an alternative expression that is more appropriate to the chosen style.

4.4 Test Sentences

The collection of correct and incorrect sentences used to test the grammar checkers were constructed so that each incorrect sentence was matched a corresponding correct one. Different potential grammatical problems were covered as well as the formal and the informal style. The stylistic performance has been excluded from the statistics.

The major drawback of this method is that the sentences would probably not appear in a real life situation. An alternative way to get test sentences would have been to collect them from newspapers and magazines. However, this is quite time-consuming, especially if one wants to find sentences covering all the grammatical faults one would like to test.

For French, there were 721 test sentences of which nearly two thirds (63,4 per cent) were incorrect. The sentences were mainly constructed from French grammar books. Ulrika Byttner (who has a university degree in French and who has been living in France since 1990) has revised them.

There were 455 English test sentences of which 259 were incorrect. There were fewer English sentences mainly because more potential grammar problems may occur in French. The English sentences have mainly been collected from David Chrystal's book *Rediscover Grammar* (1988).

5 Grammatik 6

Grammatik 6 was developed by Reference Software International based in the United States for use with Windows. Grammatik 6 may be integrated with WordPerfect, Microsoft Word and other word processors, or it can be run as a stand-alone program. When integrated, a Grammatik command is added at the bottom of the Tools menu. For this evaluation, Grammatik 6 was not integrated with the word processor (Microsoft Word 7.0 within the Office 95 package for Windows 95).

The program is marketed as the best grammar and style checker that covers grammar, style, usage, punctuation, and spelling mistakes. It is relatively small (less than 3 Mb), and comes in American and British versions.

5.1 Functionality and Presentation

Grammatik 6 consists of a program plus dictionaries. It offers two types of grammatical analyses of sentences as well as readability statistics for the text including sentence complexity, vocabulary complexity, and usage of passive voice. These statistics may be compared with readability statistics from Dicken's novels or the user's proof-read documents. The readability facilities were not evaluated.

The program isolates errors in the sentence, dealing with them one at a time. Hence, a correction of one error may create new errors in the sentence. The program centres round the verb, so that the correction of an agreement error between the subject and the finite verb starts with the user choosing which verb form to use. Then, if the agreement error still exists, the subject needs to be changed. Thereby, the proof-reading of a sentence is performed in steps.

Proof-reading Options

The user has a limited possibility to influence the grammatical part of the program. The proof-reading may be carried out interactively or automatically. However, the automatic proof-reading option is only semi-automatic since the program halts when ever more than one alternative is presented by the program. The evaluation was carried out in the automatic mode.

Grammatik 6 offers several styles. The evaluation was mainly carried out using the style option "Quick check", which is the default when the program is run for the first time. Another style alternative is called "Very strict" which among other things comments on the usage of the personal pronoun *you* and on the usage of the passive voice.

In the former version Grammatik 5 the user could customise the program by editing or adding rules. That possibility is no longer available. The user can only choose between different styles and edit the dictionaries.

Presentation of Results

The graphical interface contains menus and buttons for basic functions (e.g. open document) and for proof-reading purposes. In a part of the Grammtik window the program presents the erroneous sentence found in the text, explains the error and shows how the

sentence ought to be formulated. The user interactive parts of the window contain an alphabetically ordered list of possible corrections of the error and a pop-up menu where one of the available styles is chosen. The text being proof-read is also visible.

The program sometimes behaves improperly causing a loop in the interactive correction procedure. Grammatik 6 recognises an error and two alternatives are given to the user. The alternatives contain a part of the sentence, and the cursor is automatically placed at the point in the text where the correction should begin. After making the correction, the sentence is analysed again and another error occurs in the corrected part of the sentence. The correction of this error returns the user to the first error, and so on. Sometimes putting the cursor at the beginning of the sentence can solve the problem.

The explanations accompanying the errors contain much information. To understand these, the user requires a good knowledge of grammatical concepts.

The user can take part of the analysis of a sentence only when the program has found the sentence to be incorrect. There are two types of analyses: part-of-speech and parse tree. The part-of-speech option presents the word categories for each word in the sentence. The parse tree option presents the hierarchy of the sentence from sentence via clause to phrase and word level with the syntactical function assigned to each level.

Using an undo command may not change an incorrect correction. This has to be done manually in the text. In the proof-read text, the user is unable to see what has been changed since the program does not present any proof-reading marks.

Dictionaries

The main dictionary contains all words and their respective word categories. The word categories are the word classes and a few subclasses such as the quantifying adjective. The user can not edit the main dictionary, but it is possible to create a dictionary of one's own.

There are two help dictionaries that may be edited by the user. One of them contains replacements, i.e. how common-spelling errors should be corrected (the space token may be included). The other dictionary is a list of words that the program should skip when proof-reading.

5.2 Recognising Errors

As seen in table 5.1, nine of ten correct sentences were accepted by Grammatik 6 as such. In one out of ten cases there were false alarms. Of the incorrect sentences, four of ten were recognised as incorrect, leaving nearly six of ten unnoticed as missing hits. Hence, the overall accuracy rate was over 80 per cent.

Table 5.1 Recognition Ability of Grammatik 6

	Recognised		Failed		Total	
Correct sentences	269	(90,9 %)	27	(9,1 %)	296	(100 %)
Incorrect sentences	108	(41,7 %)	151	(58,5 %)	259	(100 %)
Total	377	(83,9 %)	178	(39,1 %)	455	(100 %)

A further analysis of the recognition phase is presented in more detail below. Which grammatical constructions the program handles properly and which it is not capable of managing are addressed.

Verbs and Verb Elements

A verb can be intransitive, transitive or bitransitive. Grammatik 6 was not able to make this distinction and can therefore not identify when the relation between the verb and its elements was correct or not. Sometimes, Grammatik 6 did discover verb construction errors, especially when an intransitive verb was used as if it were transitive. An erroneous or missing particle passed unnoticed, which means that valency errors were not recognised.

Pronoun case is an issue, which could be covered under other headings, here it is presented as a type of verb construction error. Pronoun case is dependent on what function the pronoun has in the clause. If it is an object it should be in the objective form. If it is a subject it should be in the subjective form. Grammatik 6 was able to recognise errors concerning pronoun case. Some pronoun case issues were considered as style problems (see below).

Verbs can also be seen as either stative or dynamic. Stative verbs do not occur in the progressive aspect, while dynamic verbs do. Grammatik 6 did not handle this type of problem. It did recognise other errors in a verb sequence, such as incorrect present perfect or progressive forms, but there were combinations that the program did not recognise, especially sequences with the infinitive mark *to* which ought to be followed by the infinitive. Erroneous usage of modal verb phrases in the limited sense was not recognised, and neither that of modal idioms. Incorrect usage of tense was not recognised by Grammatik 6.

Some verb phrases can only take the passive voice. This type of problem was not recognised by Grammatik 6. The program did, though, recognise when a clause in the passive voice was incorrectly formed (e.g. when the subject and the object had the same meaning).

Noun Phrases

Grammatik 6 recognised the differences between proper nouns and common nouns. Singular nouns without the indefinite article were mostly identified as errors. There are some false alarms when correct singular nouns without determiners or modifiers were actually correct. However, when two noun phrases stand next to each other (for instance

as an object and an objective complement) the program had difficulties recognising the missing indefinite article. The program was not able to detect when there ought to be a definite article. Zero article in expressions, more or less perceived as idioms (such as *have lunch*) are accepted, but an inserted article was accepted too.

Plural endings attached to compound nouns may create problems. A correct form may be identified as incorrect and cause a false alarm. Some nouns are invariable, only occurring in the singular or in the plural. If such a word was misused, Grammatik 6 recognised the error. However, there are words for which the usage is not clear-cut, for which Grammatik 6 accepted only one of the forms.

Grammatik 6 reacted when an uncountable noun was used in a countable context, and vice versa. If the writer wants to make an uncountable noun countable, an expression like *a piece of* has to be used.

Personal and reflexive pronouns may be used for replacing a noun. A missing pronoun was not recognised. If the wrong pronoun was used, the error was recognised. Erroneous reciprocal pronouns were sometimes recognised and sometimes not. A demonstrative pronoun used in the wrong context was not recognised as incorrect. If a pronoun constructed with *of* was used but the noun phrase was improperly formed, the sentence was recognised as incorrect. The difference between *every one* and *everyone* was also recognised.

Incorrect sequences of words constituting a noun phrase were sometimes recognised by Grammatik 6. If only modifiers were involved, the erroneous sequence is recognised. However, if premodifiers (adjectives, participles and nouns) were used, the error might not have been detected. Word order problems in the noun phrase were not recognised.

Determiners as articles have already been mentioned above. The improper use of other determiners was inconsistently identified. For instance *such* was not recognised when incorrectly used whereas incorrect use of *enough* is recognised. When there was a distinct rule concerning agreement between determiner and head noun, errors were detected.

Before determiners come predeterminers, for example *all* and *half*. Incorrect combinations of predeterminers were sometimes recognised and sometimes not. Cardinal, ordinals, and quantifiers are postdeterminers. Incorrectly used postdeterminers were mostly not detected by Grammatik 6. Erroneous usage of postdeterminer and countable or uncountable nouns, though, could be recognised.

A premodifier which should be in the genitive formed with an *'s* but where the genitive ending is missing was not recognised as an error. Neither are incorrect genitive constructions with *of* recognised; the program was unable to decide which genitive construction was appropriate.

The relative clause is seen as a part of the noun phrase to which it is a postmodifier. The choice of proper relative pronoun depends on the antecedent and on the function it has in the relative clause. The relative pronoun has to agree in certain semantic features with its antecedent, namely they both have to be *animate* or *inanimate*. Errors of this type were not recognised. The verb in the relative clause has to agree with the antecedent in number and person. This type of error was recognised.

Adjective Phrases and Adverb Phrases

Adjectives can be divided into two groups: central and peripheral. The peripheral adjective may not take all the positions that the central adjectives may. Erroneous usage of peripheral adjectives was sometimes recognised, but often the error was not detected.

The so-called a-words, i.e. words starting with an *a* such as *awake* and *abroad*, are either more like adjectives than adverbs or vice versa. Adjective-like a-words can be used after copular words, while adverb-like a-words cannot. Instead, the latter can be used after *go*, where the adjective-like words cannot be used. Errors in usage of a-words were not recognised.

Grammatik 6 did not recognise word category errors in complements to copular verbs, this is probably due to an inability to recognise erroneous clause constructions. Therefore, when an adverb was used instead of an adjective, the program did not react. Conversely, when there should be no complement but an adjective was used, the error was recognised.

For comparative phrases incorrectly formulated comparisons were not recognised, nor were errors in the declination of adjectives. The erroneous use of the *-er* suffix was recognised, but an incorrect comparison with *more* was not recognised. Incorrect usage of the definite article in the superlative form was also not recognised.

Prepositional Phrases

A preposition may be single or complex. Complex prepositions that were incorrectly formed were not recognised. Grammatik 6 was unable to choose the correct preposition in a prepositional phrase.

Clause Level

The subject and the finite verb should agree in number and person. Most of the erroneous agreements were recognised, including when two coordinated nouns formed the subject. Some correct sentences did cause false alarms. Agreement of proximity was not approved. Neither was a subject consisting of two coordinated nouns. Grammatik 6 was also unable to recognise problems with notional agreement, i.e. when the notional number of the subject is used as a basis for agreement regardless of the grammatical number.

The object for reflexive verbs should agree with the subject. This disagreement error was recognised by Grammatik 6, as were agreement errors between the subject and the subjective complement of a copular verb. Agreement errors between the objective and the objective complement were, however, missed.

In existential clauses with *there*, the verb should agree with the number feature of the following noun phrase. There are exceptions to that rule, especially when the singular verb form can be used instead of the plural one. These exceptions were recognised as incorrect.

Grammatik 6 was not able to recognise problems in tag questions, whether or not they should be negated. Neither was the program able to detect errors in the connection between adverbials and tense. The program would need semantic information to recognise these errors.

Grammatik 6 seems not to have a grammar for words in vocative use. Therefore errors in sentence construction with a vocative were not recognised. Other sentence construction errors are about how to abbreviate a sentence. There are different ways to shorten a sentence, one of them is to use a pro-form. Errors in substitution by using pro-forms were not recognised, while errors in reference to other constituents in the sentences were detected and so were errors in ellipses.

The program did not recognise word order errors. For example incorrect placement of an adverb passed unnoticed. Neither could Grammatik 6 manage question and negation. Several other sentence construction problems, such as coordination errors, were not recognised. Word order in comment clauses were very seldom recognised (see also the style section below).

Many punctuation problems were not recognised, such as the usage of commas in enumerations, before appositions and around non-restrictive relative clauses. In addition, apostrophs were perceived as a single quotation mark.

Punctuation problems that were recognised included erroneous punctuation marks (for instance a full stop instead of a question mark) and missing capital letters at the beginning of sentences. But, not all erroneous punctuation marks were recognised. Some were identified as erroneous when they were correct. When identifying a punctuation error a fundamental issue for Grammatik 6 seems to be whether or not the sentence contains an inversion of the subject and the finite verb or not. When there was an inversion but no question mark, Grammatik 6 recognised the sentence as incorrect. However, an inversion does not automatically turn the sentence into a question, which led to false alarms.

Style

The number of available styles in Grammatik 6 is large. The option *Quick check* wavered between the formal and the informal style. Grammatik 6 reacted to the informal use of the objective pronoun case in *It's me* but accepted the informal *'s* instead of *is*. Generally it seems, as the formality level was not an informal style. If the program were to accept informal style, then the word *than* would be analysed as a preposition, and not only as a conjunction, making it correct to use the objective pronoun form as a complement. Instead, the objective pronoun is changed into the subjective form.

Pronoun case problems may occur when a pronoun is coordinated with a noun. The pronoun should be in the case corresponding to the function that the coordinated phrase has in the clause. However, some language users write the objective form even if it ought to be the subjective. Grammatik 6 recognised these problems without presenting comments about the style.

There are other sentence construction issues concerning choice of pronoun. The choice between the possessive form and the objective form is one. Should it be *It's no use my asking him* or should it be *It's no use me asking him*? According to traditional grammars, the possessive form is recommended, and it is also perceived as formal, whereas the objective form is more informal. The most interesting point here, is that Grammatik 6 did not approve of any of the two alternatives. This type of sentences generated false alarms; Grammatik 6 changes the pronouns to the subjective case.

Sometimes a choice can be made between the relative pronouns *who* and *whom*. Grammatik 6 always recognised the informal *who* and changed it to the formal *whom* without a comment about the different stylistic values attached to the pronouns.

Existential *there* followed by *is* although the complement is in the plural is often criticised in writing and formal speech, but this problem was not recognised by Grammatik 6.

When there is a stylistic difference between *will* and *shall*, that difference is not recognised. A sentence lacking a finite verb is reacted upon, though not as a stylistic problem but as a sentence construction problem.

Split infinitive should, according to writing guidelines, be avoided. Generally, Grammatik 6 did not react to split infinitive constructions. Inversion of verb and personal pronoun in comment clauses is another word order related topic. A literary archaic style in a comment clause was not recognised.

Colloquial speech tags were recognised as incorrect. Grammatik 6 did not find them stylistically marked. Stylistically marked words were, though, recognised. Grammatik 6 reacted on offensive words like *bullshit* but also on *pretty* with the explanation that these words should be avoided in writing.

Sexual bias is often seen as incorrect. The program did not react to sexually biased sentences. One word that sometimes is used for avoiding this problem is *s/he*, which Grammatik 6 recognised and recommended the user to change to *she or he*.

5.3 Correcting Errors

The proof-reading is made in two steps: recognition of correct and incorrect sentences, and correction of the recognised incorrect sentences. The table below (table 5.2) shows that over half of the recognised errors were corrected as well. In comparison with all incorrect sentences, nearly one of four incorrect sentences was properly corrected.

Table 5.2 Correction Ability of Grammatik 6

	Absolute number	% of recognised incorrect sentences	% of all incorrect sentences
Proper corrections	61	56,5 %	23,6 %

A closer look at the ability to correct incorrect sentences is presented below. The text disposition is identical to the one in the text about the recognition phase.

Verbs and Verb Elements

A recognised incorrect sequence of verbs was properly corrected. Hence, Grammatik 6 was able to recognise and correct verb phrases in the limited sense. Pronoun case errors are also appropriately corrected.

Incorrectly formed clauses in the passive voice were mainly properly corrected by changing the passive constructions into their active counterparts. However, it happened that the suggestion kept the passive construction and only the subject was changed, which could alter the meaning of the clause.

Noun Phrases

An invariable noun that is incorrectly used was properly corrected. An uncountable noun in a countable context was recognised but not corrected. A singular noun lacking determiners or modifiers was recognised as erroneous. Grammatik 6 gives the user three alternatives for correction: add the indefinite or the definite article, or change the noun into the plural.

Grammatik 6 was not able to correct erroneous personal or reflexive pronouns when they were replacing nouns. Incorrectly used reciprocal pronouns were recognised but not corrected, neither were improperly formed *of*-pronouns. Grammatik 6 was, though, able to correct sentences with an incorrect *every one* or *everyone*.

The majority of the recognised errors concerning determiners and head nouns were properly corrected, but sometimes no suggestion was given. For example problems with the distinction between countable and uncountable, although this distinction could also be managed appropriately in the correction phase. Recognised errors concerning pre-determiners were not properly corrected by Grammatik 6.

Grammatik 6 corrected agreement errors in relative clauses between the antecedants and the verbs in the relative clauses.

Adjective Phrases and Adverb Phrases

Recognised erroneous usage of peripheral adjectives was not corrected. When an adjective was used instead of an adverb, the error was corrected.

Clause Level

Grammatik 6 was able to correct agreement errors between clause constituents. Recognised errors concerning pro-forms abbreviating sentences were properly corrected but erroneous ellipses were not.

Grammatik 6 also managed to correct capital letter errors in the beginning of sentences. Questions not ending with a question mark were properly corrected. Other recognised punctuation problems were, however, not corrected appropriately.

Style

Many stylistic issues were not identified as such by Grammatik 6. Some stylistic issues that the program found erroneous could be corrected but not all of them. The problem was always explained though, making it easier for the user to change the sentence.

Recognised colloquial speech tags are sometimes properly corrected and sometimes not, while sentences lacking a finite verb never was properly corrected.

6 Le Correcteur 101

Le Correcteur 101 (version 1.2) consists of two main parts: the program and the dictionary. It is a monolingual proof-reading program developed by Les Logiciels Machina Sapiens Inc. in Canada and released in 1993. The program is smaller than 800 Kb, and the dictionary is even smaller. There are also filters for three different text formats.

6.1 Functionality and Presentation

Le Correcteur 101 is provided with all basic functions that one would expect a word processor to have. The user can print a text, cut-and-paste, search, and use typographical facilities. There is also an undo command, which unfortunately does not work while proof-reading is carried out.

The proof-reading program, called *Machina Sapiens 101*, has a graphical interface with menus. Additionally, four basic functions are represented with icon buttons: continue the proof-reading, correct the error according to the alternative, add a word to the dictionary, and look up the marked word in the dictionary. The icons, though, are not self-explaining. Between the two pairs of buttons, there is a message box, which is used to give the user information about the proof-reading session, the errors etc.

Proof-reading Options

The proof-reading can be carried out in different ways. The user can choose to let the program present all phrases or only the incorrect ones, the partially parsed ones, the ambiguous ones or the phrases to which the program can present corrections. Moreover, the user can set a time limit within which the problem must be resolved. There is also a possibility to reuse analyses. These mentioned options are available for both automatic and interactive proof-reading. Another option available for both interactive and automatic proof-reading is whether or not correct sentences should be presented to the user. A style checker is not included in this program.

The user chooses how the program shall behave when it comes across an unknown word. If the word begins with a capital letter, it could be accepted, signaled or refused. If the word could be confused with another word (mainly due to similar pronunciation), the user can make the program not to react, to react if the word is not common, or to always react.

Presentation of Results

The program counts how many errors a sentence contains. A message informs the user how many errors have been found, and how a correct sentence is formed. If the user only wants to change some of the errors and not all of them, it has to be done manually. Messages are often presented in the first person singular.

The corrections are made directly in the text you see, which is a copy of the original text. Depending on the settings, the output will be either a corrected version of the original text file or a file with proof-reading marks and all alternative corrections for each sentence. The former is the result of interactive proof-reading, the latter of auto-

matic proof-reading. The evaluation was carried out automatically with all sentences, even the correct ones, to be included in the resulting file.

Proof-reading marks consist of two major types: those before the sentences and those within the sentences. Marks before each sentence indicate whether the original sentence is correct (no changes made), incorrect but now corrected, probably incorrect but a correction cannot be made, or the sentence cannot be analysed.

Marks within the sentence might indicate which parts of the sentence the program is able to parse (if it is unable to parse the whole sentence). These marks do always appear with the probably incorrect mark before the sentence. Other marks within the sentence are rather based on single words indicating that the word was misspelled but is now corrected that the word is not in the dictionary, or that it is ambiguous. Some of these marks are lost in the resulting file, they can only be viewed from within the program.

The user can take part of the analyses of all sentences that are fully parsed. Hence, analyses of sentences that are only partially parsed are not presented to the user.

Dictionaries

The dictionary is a full-form one. Each word is provided with morphological information such as number, gender, and person, or with conjugation information. The user can also find words, which resemble or are identical to a particular word.

It is possible to enlarge the dictionary or to build dictionaries of one's own to be used with the program. When inserting a word, the user marks the word category and selects a dictionary. Depending on the word category, morphological information is added as well as usage information such as in which types of constructions the word can be used. However, verbs can not be inserted.

6.2 Recognising Errors

It must be kept in mind that the results of the evaluation are dependent on the constructed test sentences. Also remember that exactly the same test sentences were used for Le Correcteur 101 and Hugo Plus.

Le Correcteur 101 recognised nine out of ten correct sentences (see table 6.1). The false alarms were thus less than ten per cent. Of the incorrect sentences, the program reacted on over two thirds. Less than one third became missing hits. In total, three out of four sentences were properly handled in the recognition phase.

Table 6.1 Recognition Ability of Le Correcteur 101

	Recognised		Failed		Total	
Correct sentences	241	(91,3 %)	23	(8,7 %)	264	(100 %)
Incorrect sentences	312	(68,3 %)	145	(31,7 %)	457	(100 %)
Total	553	(76,7 %)	168	(23,3 %)	721	(100 %)

Le Correcteur 101 seems to be based on patterns of grammatical features. When the words in a sentence did not follow a possible pattern, the program reacted and explained that the sentence was incorrect. What errors or erroneous patterns make Le Correcteur signal that something could be wrong?

Verbs and Verb Elements

Verb construction errors can be about choosing the correct objects. Most errors concerning accusative objects were recognised by the program, while errors in dative objects were more difficult for the program to detect. Errors in the dative were in most cases not recognised, even though verb construction information was supplied in the dictionary. Reflexive pronouns can function either as an accusative or as a dative object. Le Correcteur had difficulties recognising which type of function the reflexive pronoun had in the clause, and therefore some agreement errors were missed. Another problem is when a verb should take a complement or an adverb. These construction errors were sometimes recognised, and sometimes not.

Valency errors in choosing the appropriate particle were not recognised. Information about which preposition or particle that is to be used after a certain verb was found in the dictionary, but the program seemed not to be able to use that information. However, Le Correcteur recognised when the particle was missing.

The choice of pronoun case is dependent on how the verb is constructed. Le Correcteur recognised errors when pronouns were in the wrong case as subjects or complements to prepositions. Le Correcteur did not recognise pronoun case errors when the noun phrase functioned as an object. When a noun phrase was missing, though, the error was recognised. The dictionary contains verb construction information, such as *transitif direct* or *intransitif*, but it seems, as this information can not be used in practice.

A more usage related topic is about choosing the proper tense and aspect. Errors in using incorrect auxiliary verbs were detected in most cases. The program had more difficulties recognising verb form errors in verb phrases in the limited sense, such as when to use the imperfective aspect. Still, the majority of those cases are identified. A missing finite verb or one finite verb too many were not recognised by the program. However, two identical finite verbs after each other were recognised by Le Correcteur.

When it comes to mood, there is a set of grammatical rules governing what verb form to use in what sentence constructions. Le Correcteur was not able to recognise errors concerning the conditional in main clauses, but the program did recognise incorrect use of the verb form in subordinate clauses. Whether to use the indicative or the subjunctive depends on the context in which the verb appears. Le Correcteur was able to recognise certain expressions that are to be followed by the subjunctive mood. Conversely, expressions that should be followed by the indicative were not identified.

Noun Phrases

Article errors passed unnoticed. Especially choice of correct article was problematic, whereas a missing article was easier to recognise. If the NP included a genitive construction, the program had great difficulties picking the correct head noun, a problem resulting in false alarms. Errors in the genitive construction itself were detected. Le Correcteur was able to recognise inappropriate pronouns as premodifiers to nouns.

Agreement errors within the NP were almost always recognised. Le Correcteur handled agreement errors between all other premodifiers and the head noun, as well as the agreement between the head noun and postmodifiers such as relative clauses including relative pronoun, finite verb, and complement. One problem that the program was unable to manage properly was the agreement between a preceding interrogative pronoun and the head noun.

Another problematic issue for Le Correcteur was when a noun and a following perfect participle created a clause reduction. Neither did the program recognise agreement errors between possessive and demonstrative pronouns standing on their own. They should agree with their respective antecedent, but when they do not Le Correcteur could not recognise the errors.

Adjective Phrases and Adverb Phrases

Adjective phrases are used for comparison, and incorrectly formed phrases were recognised. Premodifiers to adjectives belonging to an incorrect word category were recognised as well, whereas Le Correcteur had difficulties detecting the usage of improper adverbs.

Doubled adverbs (two similar adverbs after each other) were detected, and so was missing negations such as *pas* or *plus* when *ne* was written in the sentence.

Prepositional Phrases

To detect an incorrect preposition governing a prepositional phrase was an impossible task for Le Correcteur. The user can not be sure that the program would recognise when a preposition is missing. The program did, though, recognise doubled preposition, i.e. two prepositions after each other where there only should be one.

Clause Level

Agreement between the subject and the finite verb was recognised when being incorrect. The subjective complement should agree with the subject of the clause, and the objective complement should agree with the object. Errors of the former type were recognised, whereas errors of the latter type were missed.

The program recognised agreement errors between perfect participles (conjugated with *avoir*) and a preceding accusative object. If the object is in the dative, no agreement should take place. The inability to recognise verb construction errors made it difficult for the grammar checker to address these problems.

All word order errors were recognised, except incorrect order between nouns and certain adjectives. Split words were identified, as well as errors in concatenating two words.

Finally, punctuation problems were not detected. For instance, doubled full stops at the end of sentences were accepted. The program did recognise missing capital letters at the beginning of sentences.

Style

Stylistic issues were not explicitly addressed by the program. A missing *ne* in negated sentences can be perceived as a style problem, as a choice between informal and formal language use. When *ne* was left out, the error was always reacted to. Other informal problems were also detected. Le Correcteur did not react to missing finite verbs.

6.3 Correcting Errors

The program may or may not properly correct the errors in the incorrect sentences that it recognised. The ability of Le Correcteur to properly correct detected erroneous sentences was three errors out of ten. Compared with all incorrect sentences, it was able to correct two out of ten incorrect sentences. (See table 6.2.)

Table 6.2 Correction Ability of Le Correcteur 101

	Absolute number	% of recognised incorrect sentences	% of all incorrect sentences
Proper corrections	95	30,4 %	20,8 %

For many sentences only one correct alternative was presented to the user. It was then possible to see the analyses the program had made, but unfortunately the analyses could not be saved. The analyses consists of grammatical information for each word about its word class, its grammatical features such as gender, number and person, what function it has in the sentence (e.g. subject to a specific verb), and sometimes the meaning of the word is explained. The error is explained in detail, and to understand it the user ought to have a good working knowledge of grammatical terminology.

Le Correcteur 101 was unable to correct nearly seventy per cents of the recognised incorrect sentences. It was also unable to give grammatical analyses of these sentences, the only error messages the user received was that the program did not recognise the sentence structure and can not analyse the sentence. The sentences were, however, often divided into parts which the program was able to analyse, but the partial analyses were hidden from the user. No hints were thus given to the user making it easier to correct the sentences. When a longer and more complex sentence was being analysed, one message after another passed by in the message box, too quickly to be read, until the final statement about the sentence was formed. The messages in the main window were kept short and were quite uninformative, especially when the program lacked the ability to parse the sentence as a whole.

Verbs and Verb Elements

Le Correcteur was unable to correct the recognised verb construction errors concerning types of objects and complements and usage of pronoun case. Usage of incorrect auxiliary verbs was often recognised and the majority of these cases were properly corrected as well. Tense problems were not corrected. Some identified mood errors were correct-

ed properly, especially when the verb should be in the subjunctive. Le Correcteur could not correct clauses containing doubled finite verbs.

Noun Phrases

Le Correcteur was unable to correct recognised errors in article usage. Neither was the program able to give appropriate suggestions for erroneous modifiers to nouns, including the genitive constructions.

Unlike choice errors, agreement errors were both recognised and properly corrected. Sometimes, however, Le Correcteur made an improper correction, especially if the noun phrase consisted of two coordinated nouns.

Adjective Phrases and Adverb Phrases

None of the recognised errors concerning adjectives or adverbs were corrected.

Prepositional Phrases

A detected preposition problem was not corrected.

Clause Level

Almost all recognised agreement errors between clause constituents were properly corrected. The program was unable to decide which pronoun case to be used as an object, which led to improper corrections concerning the agreement between the perfect participle (after *avoir*) and the preceding accusative object.

Recognised word order errors were not corrected, except missing hyphens in questions. Split words errors were not corrected either, nor were punctuation problems (for example capital letters in new sentences). Orthography errors on the other hand were always properly corrected.

Style

Stylistic issues were not addressed as stylistic issues. They were rather treated as sentence construction errors. When *ne* was missing the user received a message that did not indicate that it could be a stylistic problem. Instead, the user received the advice to correct the sentence manually because its structure was wrong.

7 Hugo Plus

Hugo Plus was developed by Logidisque inc. and Softissimo. The evaluated version was released in 1996, and can be run with Windows 3.1 or later (including Windows 95). The program is also available for Macintosh. Hugo Plus takes up 3 Mb of the hard disk, and it needs 2 Mb RAM to run properly.

The program is supposed to be integrated with the word processor. Since the spelling dictionaries of Hugo Plus are incompatible with those in Microsoft Word 6.0, Hugo Plus was run as a stand-alone program. Hugo Plus has difficulties opening files saved as Word 6.0 documents, so that the user has to save the documents in some other format.

Hugo Plus differs from the other two proof-reading programs by being bilingual. The program manages both French and English plus translation between the two languages. Only the French checker was evaluated. The modules in Hugo Plus are basically the program itself and six dictionaries. There is also a conjugator giving the user all forms of a verb.

7.1 Functionality and Presentation

According to the documentation, Hugo Plus handles four types of problems: orthography, grammar, typography (including punctuation), and style. The interface consists of menus and short-cut buttons for often used functions as open document, save, help, start proof-reading, stop proof-reading, open the conjugator, only mark the errors, translate a word. The buttons concerning the proof-reading process itself have got their design from ordinary audio devices (rew, stop, play, ffw). Since the program is bilingual the user can decide which language to use for the menus and for the explanations.

Hugo Plus does not have all functions a user might expect from a word processor, such as marking the whole text. It has, though, search-and-replace facilities. Furthermore, it can count occurrences of a particular word in the text and also present readability statistics. More general settings can also be done which governs the behaviour of the program in certain situations (for instance make a security copy of the original text file is made before proof-reading it).

Proof-reading Options

The user can choose between interactive and automatic proof-reading. The automatic option does not make the program run fully automatically. Instead, the user has to interact with the program when there is a choice between alternative corrections, or when the program is unable to present suggestions.

The proof-reading can be done in four different ways excluding the choice between interactive or automatic proof-reading. One possibility is to let Hugo Plus proof-read without using grammatical rules (i.e. only spell checking is made). Another possibility is the simple proof-reading option where the program covers spelling errors and agreement problems between words written directly after each other. The standard grammar option embraces agreement problems within phrases. Finally, the complete grammar option covers all problems that Hugo Plus is able to handle.

There are more options available governing the presentation of possible corrections, the interactivity between the program and the user, and recognition of phrases with certain characteristics. The user may also let the program react if the number of words in a phrase exceeds the maximum number that Hugo Plus is able to handle.

The user can choose between American and European typography. The program can also be set to detect missing capital letters, too many capital letters, and capital letters within words. Moreover, double space tokens may be recognised as well as improper space before or after punctuation marks. No information though is given about which punctuation marks are checked. Hugo Plus may also be set to recognise missing commas and imbalanced pairs of parentheses.

Style options include recognition of stylistically marked words (e.g. anglicisms, archaisms, informal, regional, cliché, jargon, barbaric) and homophones. For French, the user can make the program look out for problems concerning *passé simple* and the polite *vous*.

Presentation of Results

The user can decide if the errors should be marked graphically. The marks look as if they were handwritten: round, red circles around detected errors, green marks for corrected errors, and red question marks for recognised problems which the program is unable to handle. The errors can, however, only be marked in the window, marked texts can not be saved or printed. Additionally, the program can produce a little sound when an error is found.

When the proof-reading is active, the suggested corrections are shown in a separate window, although it can only appear either at the top or at the bottom of the main window. In the correction window the user receives information about the error, possible corrections, and how a corrected sentence would be formulated. The suggested corrections are presented in alphabetical order, not with the most probable alternative first. A suggestion may lead to new suggestions concerning other parts of the sentence as a consequence of the initial change. The original expression may appear in the suggestion window, which has to or has not to be selected before the user continues the proof-reading process depending on the settings the user has done.

If the user wants more detailed information of the error, there is a rule option available. The rule is presented in a separate window. It happens, however, that no rule can be presented for an error. As already mentioned, the user may choose to get all information about errors in English instead of French.

Dictionaries

There are six dictionaries included in Hugo Plus. The user may decide which of them should be launched for the proof-reading session. Each used dictionary is shown in a separate window, which leads to a lot of open windows while running the program.

The user can create own dictionaries to be launched together with Hugo Plus. When working with the dictionaries, a special tool list is presented with buttons for the options available to the user: insert, open, filtre, information, translation, and definition. If the user chooses to put a word into a personal dictionary, a form appears in which the user

writes the word and information about it such as word category and morphological information.

7.2 Recognising Errors

The test sentences were the same as for Le Correcteur. The test was run interactively, with all options chosen except the automatic correction when a suggestion was unique and without readability statistics.

Hugo Plus recognised over 96 per cent of the correct sentences (see table 7.1). Hence, less than 4 per cent of the correct sentences were false alarms. Less than one third of the incorrect sentences were found erroneous, which means that Hugo Plus missed over two thirds of the errors.

Table 7.1 Recognition Ability of Hugo Plus

	Recognised		Failed		Total	
Correct sentences	254	(96,2 %)	10	(3,8 %)	264	(100 %)
Incorrect sentences	145	(31,7 %)	312	(68,3 %)	457	(100 %)
Total	399	(55,3 %)	322	(44,7 %)	721	(100 %)

Over half of all sentences were properly recognised. In the following sections, questions like what types of errors is Hugo Plus able to recognise, what problems pass unnoticed.

Verbs and Verb Elements

It was difficult for Hugo Plus to decide whether an object should be in the accusative or in the dative. This inability resulted in all four possible outcomes of the recognition phase: false alarms, missing hits and correct recognition of correct as well as incorrect sentences. Valency errors were not recognised.

Which auxiliary verb to use in complex tenses is a problem which Hugo Plus could recognise only occasionally. Erroneous tense was in most instances not recognised. However, errors in usage of the conditional in subordinated *si*-clause were detected. Errors concerning the passiv voice were not recognised.

Hugo Plus managed to recognise some mood errors, but not all. The program was able to detect errors in certain expressions that should be followed by the subjunctive mood (for example those beginning with *pour que*), whereas other expressions were left without comment. Conversely, the program was able to recognise when the subjunctive mood was incorrect.

A finite verb may be erroneously doubled, i.e. two finite verbs appearing after each other. If the same word was written twice, Hugo Plus recognised the incorrect sentence. In all other cases the error passed unnoticed.

Two coordinated perfect participles ought to have the same grammatical features. Hugo Plus did not react to such errors.

Noun Phrases

Article usage errors were not recognised by Hugo Plus. Neither did the program recognise a missing article. Other improperly formed noun phrases were not identified. Hugo Plus could not recognise incorrect relative pronouns in postmodifiers. Relative clauses may contain constituents that should agree with the head word, such as complements, but these errors were also missed.

Incorrect gender in coordinated noun phrases was recognised, whereas incorrect number was more difficult. When a noun did not end in *s* but was a collective word, Hugo Plus perceived it as a singular noun which led to false alarms. Agreement errors between modifiers and head words were recognised, even when the postmodifier consisted of a participle which together with the head noun created a short version of a whole clause.

Adjective Phrases and Adverb Phrases

Hugo Plus recognised when an adjective was incorrectly declined, but the program was unable to recognise when an adjective form was improperly used. Neither did the program recognise when to use adjectives and when to use adverbs in clauses. However, erroneous premodifiers to adverbs were recognised.

The program detected a missing *ne* if there was a *pas* in the clause, but not when the restriction was achieved with *plus* or *que*.

Prepositional Phrases

Hugo Plus did not recognise erroneous prepositions in prepositional phrases, neither was missing prepositions detected. Errors in complex prepositions, which more or less are idiomatic expressions, were not recognised. Pronoun case errors in prepositional phrases produced missing hits.

Clause Level

The inability of Hugo Plus to manage verb construction problems may result in incorrect conclusions about the agreement between for example objects and perfect participles. This was especially true when reflexive pronouns were used. Nearly all agreement errors between subject and complements were recognised, as well as those between subjects and finite verbs. A condition for recognising these agreement errors was that the words do not stand too far away from each other.

Incorrect agreement between independent possessive or determinative pronouns and their antecedents passed unrecognised. The same happened when a sentence contained doubled subjects, that is, when the sentences started with a noun phrase to which a following personal pronoun functioning as the subject correlated. Hugo Plus was unable to find the antecedents to the pronouns, and the program handled the agreement incorrectly.

Noun phrases that contain coordinations could be managed improperly, because Hugo Plus analysed certain coordinations incorrectly. Therefore incorrect results were presented in the recognition phase.

Hugo Plus failed to recognise words in the wrong order. However, the program was able to identify when *ne* and the accusative object appeared in the wrong order in an exclamation.

Split words were recognised if the separate words did not exist in the dictionaries. Concatenated words that were not found in the dictionaries were also flagged as incorrect.

In inversions a hyphen is needed under certain conditions. A missing hyphen was detected in questions and in some imperative phrases. Concerning space before and after punctuation marks, the question mark, the exclamation mark and the semi-colons were checked. Some punctuation problems, such as double full stops, were not recognised, whereas other errors were such as capital letter errors at sentence beginnings.

A problem related to orthography is about choosing the correct word form depending on how the following word sounds. When the following word started with a vowel, the error was detected. If the word starts with a consonant, though, the error was not recognised.

Style

Missing *ne* in negations with *pas* were recognised but not as a stylistic issue. Missing finite verbs in sentences were not recognised.

7.3 Correcting Errors

Hugo Plus managed to propose correct alternatives for almost two thirds of the recognised incorrect sentences (see table 7.2). Of all the incorrect sentences, the program was able to correct over two errors out of ten. If an error was recognised but the program could not suggest a correction, a red question mark was put at the particular problem for the user to solve.

Table 7.2 Correction Ability of Hugo Plus

	Absolute number	% of recognised incorrect sentences	% of all incorrect sentences
Proper corrections	97	66,9 %	21,2 %

It is possible for the user to view the analysis that Hugo Plus made for a sentence. The analysis is presented in a table with two columns: the left contains the graphical word, the right contains the grammatical information about the word. The grammatical information tells the user what word class the particular word belongs to, and if there might be any problem and, if so, what the problem is. However, no syntactic or functional analysis of the sentence is presented. Parts of the sentence could have been taken in the presented analysis, often words in the beginning. Probably the parts left out is perceived to be unproblematic by the program, are left out.

Verbs and Verb Elements

Choosing the correct elements when the verb construction error has been recognised was properly done. The inability to recognise verb elements made it difficult for Hugo Plus to select the proper auxiliary verb. However, the correct alternatives were always in the suggestion list and therefore the errors were corrected. The user had to look up the main verb in the conjugator to find out which auxiliary verb to use. Hugo Plus was able to correct the recognised mood errors. The program corrected also two identical finite verbs appearing after each other by removing one of them.

Noun Phrases

Hugo Plus was able to correct sentences that the program recognised as erroneous concerning the features a noun phrase ought to have. Agreement errors between modifiers and head words were properly corrected.

Adjective Phrases and Adverb Phrases

Recognised incorrect declinations of adjectives were corrected properly. So was missing *ne*. Premodifiers in adverb phrases were appropriately corrected.

Clause Level

Detected agreement errors between clause constituents are generally corrected. If a verb is involved, the correction of the clause starts with the user choosing which verb form to use, that is often the same thing as choosing which person and number to use. Words not agreeing with the chosen verb form (or person/number) are then being corrected.

Word order problems were generally not recognised and therefore not corrected. There was, though, one exception. Incorrect order between *ne* and the accusative object is an error that Hugo Plus both recognised and corrected properly. Errors concerning hyphens in inversed clauses were corrected. Missing space tokens before exclamation marks, questions marks, and semi-colons were also corrected if this space option was chosen. Capital letter errors in the beginning of a new sentence were corrected as well.

Split words and concatenated words are errors that Hugo Plus did recognise but not correct.

8 Summary

The main objective was to evaluate the coverage of the grammar checkers. The investigation was focused on specifying what kind of constructions they can handle. The most important results are presented in this chapter and summarised in the table 8.1.

The test sentences covered different types of grammatical errors and language usage problems. Le Correcteur 101 had more false alarms than Hugo Plus, but less missing hits (see tables 6.1 and 7.1). The difference between the two programs is much smaller for the false alarms, whereas it is quite large for the missing hits. Generally, false alarms are experienced as more annoying by the user than missing hits. However, Grammatik 6 had the largest rate of false alarms. The rate of missing hits is somewhere between the rates of the other two grammar checkers.

All of the three grammar checkers were able to solve agreements problems and none of them were able to properly handle valency errors and problems with prepositions. Verb phrases in the limited sense, though, were mostly managed properly. Capital letters in sentence beginnings were recognised by all but corrected by two of the programs.

In comparison with Le Correcteur, Hugo Plus was more limited in its ability to recognise incorrect sentences. It could handle some specific issues, but related problems passed unnoticed. In particular, the program recognised orthography errors and missing *ne* or *pas* in negated sentences. It handled the subjunctive versus the indicative mood, and word form errors when the following word started with a vowel. Furthermore, Hugo Plus recognised and corrected problems with the conditional verb form in *si*-clauses, comparison of adjectives, word category errors in premodifiers to adjectives, and, as already mentioned, different types of agreement errors. Hugo Plus handled agreement errors between subjects and complements (adjectives and participles), between premodifiers and head nouns, between head nouns and postmodifiers, between objects and participles, and between subjects and finite verbs.

Besides orthography and agreement errors, Le Correcteur was on the other hand able to handle errors concerning the subjunctive in *que*-clauses and which auxiliary verb to use. Moreover, some verb construction errors were identified, such as missing objects and missing verb particles. Word order problems on the clause level were recognised as well together with most errors in adverb phrases.

Grammatik 6 differed from the other two proof-reading programs in its ability to properly address pronoun case errors and article usage. Compared to French, English has a less complicated verb construction system. It was also much better on handling voice problems and style problems.

The three grammar checkers seem to use different strategies for recognising and correcting errors. Grammatik 6 addressed style and usage problems, which the other two programs did not. The speciality of Le Correcteur 101 was its ability to recognise incorrect sentences. It seems to have a well developed pattern recognising function. Hugo Plus on the other hand showed a better ability to correct the errors that was found.

Table 8.1 Recognition and Correction Abilities of the Evaluated Grammar Checkers

		Grammatik		Le Correcteur		Hugo Plus	
		recognises	corrects	recognises	corrects	recognises	corrects
VP	verb construction	(-)	-	(+)	-	(-)	+
	pronoun case	+	+	(-)	(-)	-	
	verb phrase in the limited sense	(+)	(+)	(+)	(+)	(+)	+
	voice	(+)	(+)	-		-	
	usage of tense & aspect	-		(+)	-	(-)	
	mood	-		(+)	(+)	(+)	+
NP	sequence of words	(+)	-	+	-	-	
	article use	+	+	(-)	-	-	
	genitive	-		(+)	-	(-)	-
	agreement in NP	+	-	(+)	(+)	(+)	+
	relative clause agreement	(+)	(+)	+	+	-	
	word order	-		+	-	(-)	+
AP & AbP	adjective phrase & adverb phrase	(+)	(-)	+	-	(-)	+
PP	preposition errors	-		(-)	-	-	
Clause	agreement between clause constituents	+	+	(+)	(+)	(+)	+
	word order	-		+	-	-	
	usage of commas	-		-		-	
	punctuation mark	(+)	(-)	-		(-)	+
	capital letter	+	+	+	-	+	+
Style	formal / informal	(+)	(+)	(-)	-	-	

Explanation to the symbols:

- +
 - (+)
 - (-)
 -
 - empty
- the problems were handled properly
- at least half of the problems were handled properly
- some of the problems were handled properly
- the problems were not handled properly
- the problems could not be addressed

9 Bibliography and References

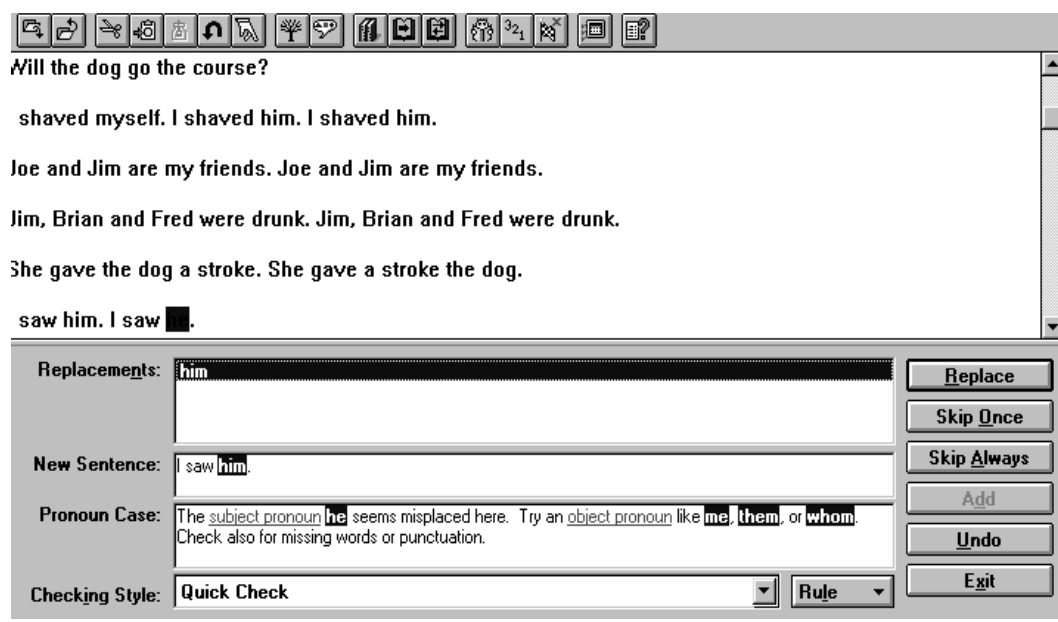
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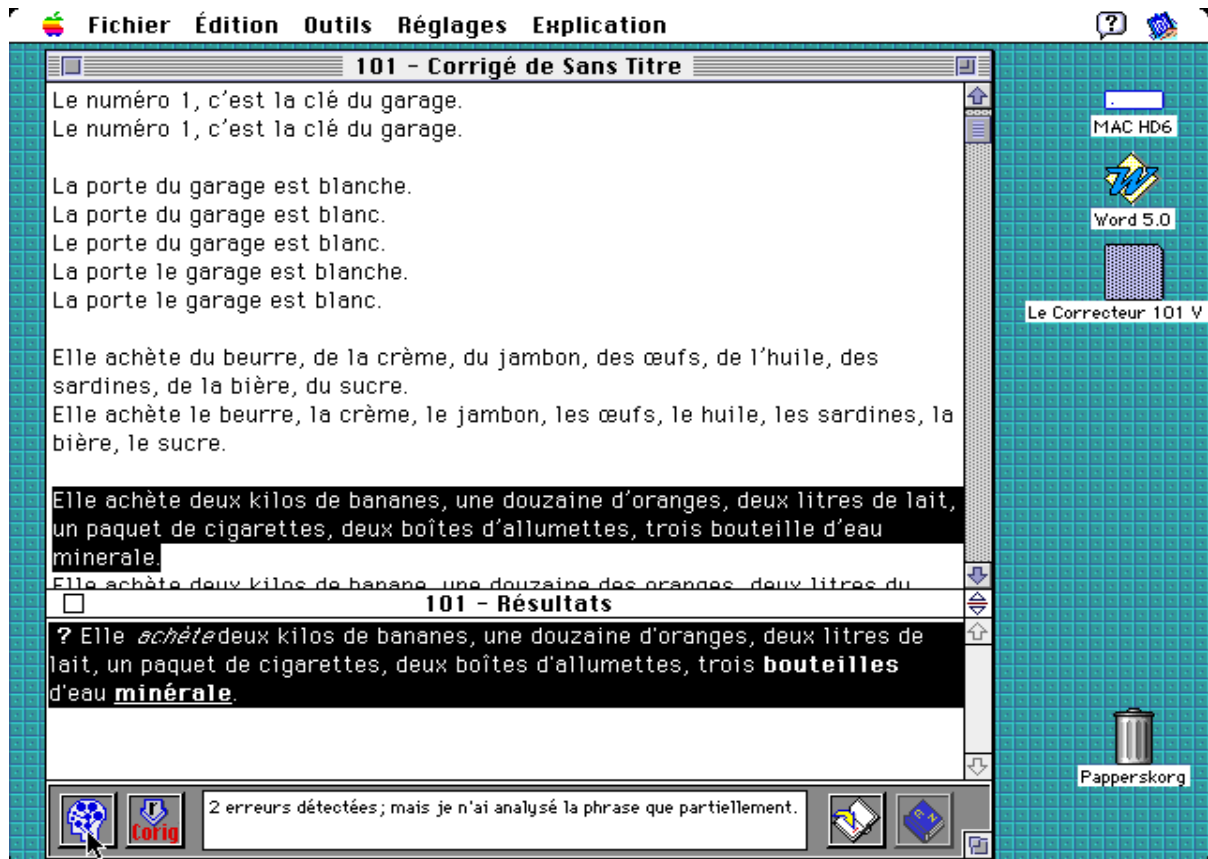
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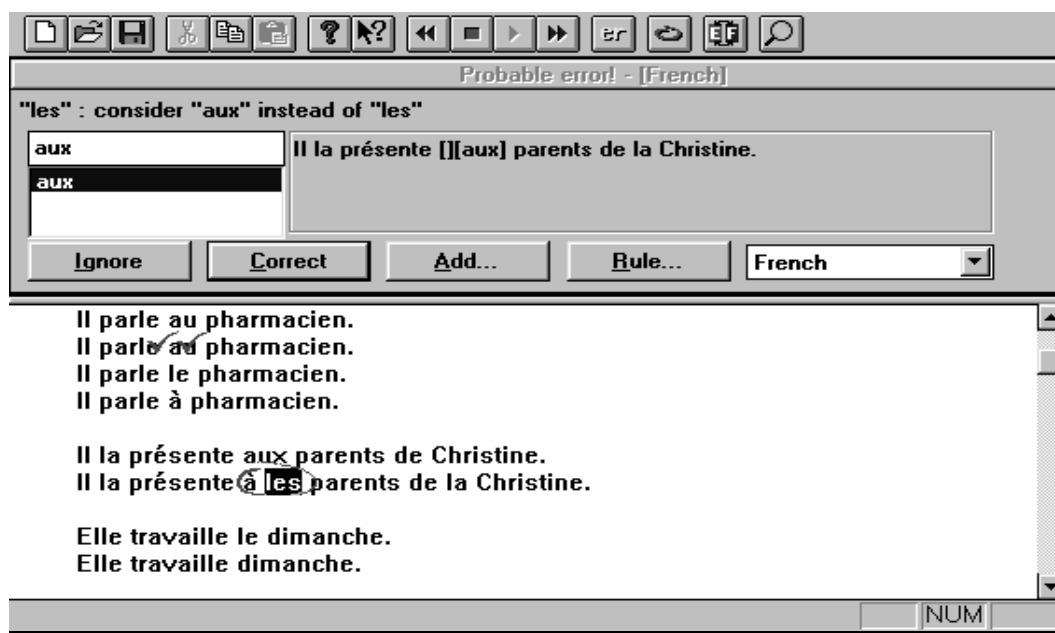
Appendix 1: Illustrations of Grammatik 6, Le Correcteur 101 and Hugo Plus



Grammatik 6. Running above is the Quick Check alternative of the Grammatik 6 Grammar checker. When recognising an error, the program marks it in deep blue, corrects it if possible and removes the marking. This means, that after the correction, the user is not able to see what the program has done. As seen above, the program is for example able to detect and correct errors concerning pronoun case.



Le Correcteur 101. The program counts how many errors a sentence contains. A message informs the user how many errors have been found, and how how a correct sentence is formed.



Hugo Plus. Running above is a test run of the grammar checker Hugo Plus, the French version. When recognising an error, Hugo Plus marks it with a red circle around the error. After the error has been corrected, it is marked with a green tic, to show the user what has been done. As seen above, the program is able to detect and correct errors concerning prepositions together with articles.

Appendix 2: English test sentences

For his birthday, Freddy wants a bike, a robot, a car, and a visit to the cinema. For his birthday, Freddy wants a bike, a robot, a car and a visit to the cinema.

The dentist has written to you again. The dentist has wrote to you again. The dentist has written by you again.

Why did he go? Why he goes? What did he go?

There were gentlemen and there were seamen in the navy of Charles the Second. But the seamen were not gentlemen; and the gentlemen were not seamen.

My wife has dropped a book on her foot. My wife has dropped a book on the foot. My wife has dropped book on her foot.

I gave the keys to Luke. I gave keys to Luke. I gave the keys at Luke.

Easy come, easy go. Like father, like son. Wish you were here.

How do you do? How did you do? How does he do?

God save the Queen! Lord forbid! How about a lift? How come he's not here?

The attendant has called me a foul twice. The attendant has call me a foul twice. The attendant has me called a foul twice.

Hillary gave me a pen. Hillary gave a pen.

I leaned on the stick again happily. I leaned again happily. I leaned.

I told you so. Told you so.

Hardly had he left, when the heavens opened. Hardly he had left, when the heavens opened.

Will Michael resign? Will Michael resign.

Where are you going? Where you are going. Where are you going.

Why didn't he answer? Why he answers?

Mary's outside? You've spoken to her?

It's here, isn't it? It's here, is it?

She's not in, is she? She's not in, isn't she?

Hasn't she grown! Wasn't the book marvellous! Was he angry!

They left early, did they not? They left early, didn't they?

You'll be there in the afternoon, right?

Have a drink with me tonight. Has a drink with me tonight.

You be quit! Nobody move! Everyone go! Let me see. Do come in.

What a lovely day it is! What lovely day it is! What a lovely day is!

How nice she looks! How a nice she looks!

How often have I cursed that terrible day!

– John didn't like the film.

– He didn't what?

That old farmer drinks beer by the bucketful. That old farmer beer by the bucketful.

The farmer's going.

That farmer's enjoying his drink. That farmer's enjoying.

I say! Look what Mervin's wearing!

Will the dog go the course?

I shaved myself. I shaved him. I shaved himself.

Joe and Jim are my friends. Joe and Jim are my friend.

Jim, Brian and Fred were drunk. Jim, Brian and Fred was drunk.

She gave the dog a stroke. She gave a stroke the dog.

I saw him. I saw he.

She said I had been foolish. She said me had been foolish.

I gave a pen to Sam. I gave a pen Sam. I gave a pen by Sam.

He is a doctor. He is doctor.

The bull became angry. The bull became angrily.

That tune sounds marvellous! That tune sounds marvellously!

They elected him president. They elected him the president.

She made me angry. She made me angrily.

The child is an angel. The child is a angel. The child is angel. The child is angels.

The children are angels. The children are angel.

I find your child an angel. I find your child a angel. I find your child angel. I find your child angels.

I find your children angels. I find your children angel.

That is he. I am she. That's him. I'm her.

It's me. It is I.

She is in good health. Today will be fine.

I arrived on the bus on Thursday in the rain wearing a hat eating grapes.

Twice he asked me. He asked me twice. He twice asked me.

Jim stayed quietly. Jim stayed quiet.

I put the book on the table. I put the book. I put the book in the table.

We live in a city. We live. We live at a city.

The path goes around the field. The path goes. The path goes round the field.

The play lasts for two hours. The play lasts. The play lasts in two hours.

Cannes lies on the Riviera. Cannes lies. Cannes lies in the Riviera.

The children kept out of trouble. The children kept. The children kept out.

Mike, telephone for you. We mustn't be late, dearest.

John, put that down and come over here. John, put that down and John, come over here.

Come here, handsome! Come here, more handsome!

He's more handsome than Fred. He's handsome than Fred.

My cat has a meal in the evening. My cat have a meal in the evening.

I was ready. I were ready.

That is an apple. Those is an apple.

Those are apples. Those are apple. That are apples.

I thought him a fool. I thought him fool. I thought him fools.

I thought them fools. I thought them a fool.

Two miles is a long way. Two miles are a long way.

No one except his freinds agree with him. No one except his freinds agrees with him.

None of the pens is on the table. None of the pens are on the table.

Law and order is now established. Law and order are now established.

I shouldn't have been seeing them.

He asked that the car be moved.

I am going. I have going.

He wants to see. He wants see.

He saw me not. He saw not me.

He might not go. He might go not.

I can't. I don't can.

Did he see a car? Did he saw a car? Saw he a car?

Did they ask the way? Did they asked the way? Asked they the way?

He must go. He musts go. He wants to may go.

Have you a car? Do you have a car? Had you a car? Have you got a car?

Do you have sugar with your tea? Have you sugar with your tea?

Daren't she go? He doesn't dare.

I used to go. I use to go. I used go.

I didn't use to go. I didn't used to go. I usen't to go. I used not to go.

I'd better go. I will have got to go.

Had I better go? Had better I go?

You'd rather stay? It's to take place in the morning.

It isn't going to fall. It's goingn't to fall.

He appeared to see me. He appeared to seeing me. He appeared see me.

He appeared to fail to want to come to see the show.

The dog went for the postman. The dog went for. The dog went the postman.

It went astray. It went astray the postman.

They called on him last week. They called him on.

They called him up last week. They called up him.

He got away with it. He got away it.

I insisted that John pay on time. I insisted that John pays on time. I insisted that John will pay on time.

I demand that he leave at once. I demand that he leaves at once. I demand that he should leave at once.

I wish it were finished. I wish it was finished.

Cleaning services in state-run hospitals have recently been privatised. Cleaning services in state-run hospitals have recently been privatized.

I was kicked at the match. I got kicked at the match.

I was hurt by a car. I got hurt by a car.

I have a car. A car is had by me.

Mary resembles Ellen. Ellen is resembled by Mary.

She was said to be happy. Someone said her to be happy.

Mary saw herself in the mirror. Herself was seen in the mirror by Mary.

Jack fought Michael, and was beaten. Order has been restored in the country.

If an air-conditioning plant is installed, the humidity of the nurseries is controlled with the heating and ventilation, but the correct humidity can also be obtained by simpler methods.

I've lived in Bonn for a year. I've living in Bonn for a year.

I saw him a week ago. I've seen him a week ago.

I have not seen you since Monday. I did not see you since Monday.

I was happy. I was being happy.

I have a car. I'm having a car.

I see a car. I'm seeing a car.

I'll see you. I'll be seeing you. I'll seeing you. I'll be see you.

I'm going to ask him. I'm going to asking him.

I leave soon. Go before I do.

She's to sit here. She's to here. She to sit here.

She's about to go. She about to go. She's about going.

I shall be 20 soon. I will be 20 soon.

Shall you go? Mary shall sit here.

The three cats are eating the meat. The three they are eating the meat.

The good, the bad, and the ugly.

The boy seems hungry. The book seems hungry.

Fred is here. I like London. Today is Tuesday. Book is bad. Egg is bad. I like cat. Chess is fun.

The Hague is a capital city. The beautiful Hague is a capital city.

Look at all those Smiths! I used to know a John Brown. They've changed my London.

I like books. I like musics.

I'd like a piece of information. I'd like an information.

The lights and sounds were amazing. Light travels faster than sound.

I like those lambs. I like lamb.

Let's sing one more chorus. Let's sing three more choruses. Let's sing three more chori.

More crises to deal with. More crisis to deal with. More crises to deal with.

There were many passers-by. There were many passer-by. There were many passer-bies.

They are our mothers-in-law. They are our mother-in-laws.

They are women doctors. They are woman doctors. They are women doctor.

John was at the party. John were at the party.

Physics is fun. Physics are fun.

Music is the food of love. Musics are the food of love.

Your jeans are on the table. Your jeans is on the table.

The outskirts are pretty uninspiring. The outskirts is pretty uninspiring.

The police are outside. The police is outside.

The headquarters is three miles way. The headquarters are three miles away.

Much of this data needs re-examining. Many of these data need re-examining.

The media are responsible. The media is responsible.

The criteria are important. The criteria is important.

The phenomena were amazing. The phenomena was amazing.

Here is the news. Here are the news.

Politics is a complex subject. Fred's politics are boring.

The police are standing by. A police is standing by.

Here is a box. It is the which was opened. It was the bow who was opened.

Here is a man. He is the man who I met yesterday. He is the man which I met yesterday.

Socrates' work has been tranferred by Plato. Socrates's work has been transferred by Plato.

It was a summer's day. It was a summer day. It was a summers day.

The boy's application is in the archive. The boys application is in the archive. The boy application is in the archive.

Fred's book has fallen apart. The book of Fred has fallen apart.

This question is a part of the problem. This question is the problem's part.

This is the teacher's book. This is the teacher of music's book. This is the teacher's of music books.

Mary's bike is newer than John's. Mary's bike is newer than Johns.

My father knows some friends of my uncle's. My father knows some friends of my uncles. My father knows some friends of my uncle.

We sell fresh pies. We sell fresh pie's.

Everyone likes our chips. Everyone like's our chips.

There is a cat. There is a this cat. There is the my cat. There is some the cat.

I would like some cups. I would like some cup.

I would like enough cup. I would like enough cups.

I would like that cup. I would like that cups.

I would like these cup. I would like these cups. I would like these fun.

I would like a cup. I would like a cups. I would like a fun.

I would like each cup. I would like each cups. I would like each fun.

I would like either cup. I would like either cups. I would like either fun.

You should go to bed. You should go to the bed. You should go to a bed.

We are travelling by car. We are travelling by the car. We are travelling by a car.

Are you having lunch? Are you having a lunch? Are you having the lunch?

I love all the people. I love all such people. I love all of the people. I love both all the people.

I love such occasions. I love such twice occasions.

Only the two books were left. It's just a cat.

Give me half. Both arrived.

All the people were asked. The people were asked. The people were all asked.

The last two pages of this book are torn out. The last two pages of these books are torn out.

The two last pages of these books are torn out. The two last pages of this book are torn out.

I've got fewer cards than you. I've got less cards than you.

He's made the fewest mistakes. He's made the least mistakes.

There was a large number of people in the hall. There was a large amount of people in the hall.

This is a nice big cardboard box. This is a cardboard big nice box.

I've got the same big red garden chairs as you have. I've got the same big red stolen chairs as you have.

I can see the girl who was waiting. I can see the girl whom was waiting.

I can see the man to whom I spoke. I can see the man who I spoke to. I can see the man to who I spoke. I can see the man whom I spoke to.

The men who were angry have calmed down. The men who was angry have calmed down. The men who was angry has calmed down.

The boy who saw the cats has gone home. The boy who saw the cats have gone home.

She left the day on which I was ill. She left the day on that I was ill.

That's the man whom I saw. That's the man who I saw.

The story that I had resigned was published. The story that is I had resigned was published- The story which I had resigned was published.

I saw the clerk. a rather seedy type. I saw the clerk a rather seedy type.

I've got a red car and Mike's got a brown one. I've got a red car and Mike's got a brown.

That is a big car. That is a big it.

John washed himself. John washed themselves.

They blamed each other. They blamed other. They blamed each.

Take this one here, not that one over there. Take this one here, not this one over there.

Each of them paid ten dollars. Every of them paid ten dollars.

Every one of them paid ten dollars. Everyone of them paid ten dollars.

Ted and I went by bus. Ted and me went by bus. Me and Ted went by bus.

Between you and me, this is bullshit. between you and I, this is bullshit.

He asked Mike and me to do it. He asked Mike and I to do it.

It's no use my asking him. It's no use me asking him.

The applicant should sign his name at the bottom. The applicant should sign her name at the bottom. The applicant should sign his or her name at the bottom. Each applicant should sign his or her name at the bottom.

New students will find they have a lot to do. A new student will find he has a great deal to do.

S/he can apply for a grant.

The dog is asleep on the mat. The asleep dog lies on the mat.

That is utter nonsense. That nonsense is utter.

The child seemed awake. The child seemed aboard.

We went abroad. We went afraid.

The red door is ajar. The ajar door is red.

She is taller than Mary. She is tallest than Mary. She is tallest. She is more tall than Mary.

She is more beautiful than her sister. She is the more beautiful than her mother. She is beautifuller than her sister.

You sounded terribly anxious. You sounded terribly.

You spoke very anxiously. You spoke very anxious.

She soon went home. She went soon home.

I travelled by bus. I by bus travelled.

You ought to consider the problem seriously. You ought to seriously consider the problem.

We would like to so organise the system. We would like so to organise the system. We would like to organise so the system.

The dog bit her on the leg. On the leg the dog bit her.

We spoke quietly in the bar until 10. We spoke until 10 in the bar quietly.

John certainly saw Jim. It was certainly that John was Jim.

In short, John saw Jim. It was in short that John saw Jim.

Nevertheless, John saw Jim. It was nevertheless that John saw Jim.

He came in spite of the rain. He came in spite for the rain. He came in a spite of the rain. He came out spite of the rain.

What did it look like? Like what did it look?

He is taller than me. He is taller than I am. He is taller than I.

I've got a new car and John's got one too. I've got a new car and John too.

Two people hurt themselves in the accident. Two people hurt herself in the accident.

I went by bus and Mary by train. I went by bus and by train Mary.

Hilary went to Leeds, and Mary went to York. Hilary went to Leeds, and moreover Mary went to York. Hilary went to Leeds, Mary went to York and. hilary went to Leeds, and but Mary went to York.

Hilary and Mary look alike. Hilary looks alike and Mary looks alike.

As the sun went down, so the crying stopped. As the sun went down, the crying stopped.

The further they went, the angrier they became. The further they went, angrier they became.

I got up and went out. I went out and got up.

'I think,' Michael said, 'that we should go.' 'I think,' said Michael, 'that we should go.'

'That's right,' he said. 'That's right,' said he.

'That's right,' she laughed. 'That's right,' laughed she.

'That's right,' he complained. 'That's right,' complained he.

Down came the rain. Down was the rain coming.

There are many animals in danger these days. There is many animals in danger these days. It is many animals in danger these days.

There are some apples on the table. There's some apples on the table.

There arose a great uproar.

He likes a drink, Sid does. He likes a drink, does Sid.

Appendix 3: French test sentences

Le vin rouge coûte 6 francs le litre.

Le vin rouge coûte 6 francs du litre.

Il aime le café, la limonade, le vin blanc, les jus de fruits.

Il aime du café, de la limonade, du vin blanc, des jus de fruits.

Il aime de café, de limonade, de vin blanc, de jus de fruits.

Il n'aime pas le vin rouge, la bière, le thé, le chocolat.

Il n'aime pas du vin rouge, de la bière, du thé, du chocolat.

Il n'aime pas de vin rouge, de bière, de thé, de chocolat.

Le numéro 1, c'est la clé du garage.

Le numéro 1, c'est le clé de le garage.

La porte du garage est blanche.

La porte du garage est blanc.

Le porte du garage est blanc.

La porte le garage est blanche.

La porte le garage est blanc.

Elle achète du beurre, de la crème, du jambon, des œufs, de l'huile, des sardines, de la bière, du sucre.

Elle achète le beurre, la crème, le jambon, les œufs, le huile, les sardines, la bière, le sucre.

Elle achète deux kilos de bananes, une douzaine d'oranges, deux litres de lait, un paquet de cigarettes, deux boîtes d'allumettes, trois bouteille d'eau minérale.

Elle achète deux kilos de banane, une douzaine des oranges, deux litres du lait, un paquet de cigarettes, deux boîtes d'allumettes, trois bouteilles d'eau minérale.

Ils mangent du pain, du beurre, des pommes de terre, de la glace, des fruits, du chocolat, des légumes, du fromage.

Ils mangent de pain. Ils mangent le beurre. Ils mangent pommes de terre, la glace, de fruits.

Ils ne mangent jamais de mouton, de porc, de jambon, de veau.

Ils ne mangent jamais du mouton, du porc.

Vous désirez du café? Du chocolat? Du thé?

Vous désirez le café? De chocolat?

Vous désirez thé? Le café?

Non, je n'aime pas le thé et le chocolat n'est pas bon pour la ligne.
Non, je n'aime pas de thé et de chocolat n'est pas bon pour la ligne.
Non, je n'aime pas thé et chocolat n'est pas bon pour la ligne.

Il y a aussi du vin.
Il y a aussi de vin.
Il y a aussi le vin.
Il y a aussi vin.

Il parle à Mlle Bonnard.
Il parle Mlle Bonnard.

Il parle au pharmacien.
Il parle à le pharmacien.
Il parle le pharmacien.
Il parle à pharmacien.

Il la présente aux parents de Christine.
Il la présente à les parents de la Christine.

Elle travaille le dimanche.
Elle travaille dimanche.

Christine est arrivée mardi.
Christine est arrivée le mardi.

Qu'est que tu préfères, le Maroc ou la Tunisie?
Qu'est que tu préfères, Maroc ou Tunisie?

Je préfère le Maroc.
Je préfère Maroc.

On va au Maroc.
On va à Maroc.
On va le Maroc
On va Maroc.

On va en Italie.

On va à l'Italie.

Monique est Française.

Monique est française.

Monique est Français.

Monique est la Française.

Monique est de Française.

Elle habite en France.

Elle habite à la France.

Tu vas à Madrid?

Tu vas Madrid?

Tu vas au Madrid?

Tu vas en Madrid?

Je vais en Espagne pour apprendre l'espagnol.

Je vais à l'Espagne pour apprendre espagnol.

Les Américains sont très gentils.

Américains sont très gentils.

Des Américains sont très gentils.

André et Michel sont cousins.

André et Michel sont des cousins.

André et Michel sont les cousins.

Leur père était le docteur Lemoine de Rouen.

Leur père était docteur Lemoine de Rouen.

Il était cardiologue.

Il était le cardiologue.

Il était de cardiologue.

Michel fait des études d'anglais.

Michel fait les études d'anglais

Michel fait études d'anglais.

Michel fait des études anglais.

Michel fait des études de l'anglais.

Le ballon est rond.

Le ballon est ronde.

La terre est ronde.

La terre est rond.

M. Lenoir porte toujours une cravate grise.

M. Lenoir porte toujours une grise cravate.

M. Lenoir porte toujours une cravate gris.

En été, je ferais un long voyage en Amérique du Sud.

En été, je ferais un voyage long en Amérique de Sud.

Paris est une grande ville.

Paris est une ville grande.

Paris est une grand ville.

M. et Mme Dulac sont Parisiens.

M. et Mme Dulac sont Parisien.

Jaques et sa sœur sont absents.

Jaques et sa sœur sont absent.

Jaques et sa sœur sont absentes.

Jaques et sa sœur sont absente.

Mais quelle est cette voiture?

Mais quel est cette voiture?

C'est une voiture qui est très grosse.

C'est une voiture qui est très gros.

C'est une voiture blanche qui est très grosse.

C'est une voiture blanche qui est très gros.

Quel beau tableau!

Quelle beau tableau!

Quel bel hôtel!

Quel beau hôtel!

Il a un nouveau costume.

Il a un nouvel costume.

Il a un nouvel appareil de photo.

Il a un nouveau appareil de photo.

Christine portait une robe gris clair très chic avec une ceinture vert foncé.

Christine portait une robe clair gris très chic avec une ceinture foncé vert.

Christine portait une gris clair robe très chic avec une vert foncé ceinture.

Christine portait une robe grise claire très chic avec une ceinture verte foncée.

Je me suis acheté une robe neuve.

Je me suis acheté une neuve robe.

J'ai passé mes vacances comme hôte payant dans un village perdu des Alpes.

J'ai passé mes vacances comme payant hôte dans un perdu village dans les Alpes.

Dans le premier gouvernement socialiste après la guerre, il y avait quatre ministres communistes.

Dans le gouvernement premier socialiste après la guerre, il y avait quatre ministres communistes.

Dans le premier socialiste gouvernement après la guerre, il y avait quatre communistes ministres.

Dans le socialiste gouvernement après la guerre, il y avait communistes ministres.

Je viens mardi prochain.

Je viens le mardi prochain.

Je viens prochain mardi.

Je viens le prochain mardi.

J'ai vu Jaques dimanche dernier.

J'ai vu Jaques le dimanche dernier.

J'ai vu Jaques dernier dimanche.

J'ai vu Jaques le dernier dimanche.

Il gagne moins que M. Dudard.

Il gagne moin que M. Dudard.
Il gagne moins de M. Dudard.
Il gagne moins.

La Seine est plus longue que la Garonne, mais moins longue que la Loire.
La Seine est le plus longue que la Garonne, mais le moins longue que la Loire.
La Seine est plus long que la Garonne, mais le moins longue que la Loire.
La Seine est plus longue.

Les Alpes sont les plus hautes.
Les Alpes sont plus hautes.

Ce sont les Alpes qui sont les plus hautes.
Ce sont les Alpes qui sont le plus haute.
C'est les Alpes qui sont plus hautes.

Le film allemand est meilleur que le film américain.
Le film allemand est plus bon que le film américain.
L'allemand film est meilleur que le film américain.
Le film allemand est mieux que le film américain.

Le film allemand est moins bon que le film français.
Le film allemand est moins meilleur que le film français.

Il conduit mieux que moi.
Il conduit meilleur que moi.
Il conduit bien que moi.

Anne se couche tard.
Anne se couche tarde.

Elle trouve le français facile.
Elle trouve le français facilement.

Ma sœur apprend facilement les langues.
Ma sœur apprend facile les langues.

On est bien servi et les vins sont très bons.

On est bon servi et les vins sont très bien.

Il est très gentil.

Il est beaucoup gentil.

Il est bien gentil.

Il est beaucoup plus gentil.

Il est très plus gentil.

Il est bien plus gentil.

Il est bien meilleur.

Il est très meilleur.

Il est beaucoup meilleur.

Non, je n'habite plus à Paris.

Non, je ne habite plus à Paris.

Non, j'habite plus à Paris.

Non, je n'habite à Paris.

Elle n'a que deux ans.

Elle a que deux ans.

Il ne faut pas demander l'impossible.

Il ne faut pas demander d'impossible.

Il ne faut pas demander impossible.

Il faut pas demander l'impossible.

Il ne faut demander l'impossible.

Je le connais.

Je il connais.

Je l'invite.

Je le invite.

Je lui parle.

Je il parle.

Je le parle.

Je leur écris.
Je ils écris.
Je les écris.

Ce disque est à lui.
Ce disque est lui.
Ce disque est à il.
Ce disque est à le.

Je pense à lui.
Je pense à il.
Je pense à la.
Je pense lui.

Saluez-le!
Saluez le!
Le saluez!
Saluez-lui!
Saluez-il!

Téléphonez-lui!
Téléphonez-le!
Lui téléphonez!
Téléphonez-il!

Ne le saluez pas!
Le ne saluez pas!
Ne saluez-le pas!
Ne lui saluez pas!

Ne lui téléphonez pas!
Ne téléphonez-lui pas!
Lui ne téléphonez pas!
Ne le téléphonez pas!

Je l'ai rencontré.
Je lui ai rencontré.
J'ai le rencontré.

Je les ai rencontrés.
Je les ai rencontré.
Je eux ai rencontrés.

J'ai les rencontrés.
J'ai leur rencontrés.
J'ai eux rencontrés.

Je ne les ai pas rencontrés.
Je les n'ai pas rencontrés.
Je ne les ai pas rencontré.
Je ne leur ai pas rencontrés.

Je lui ai téléphoné.
J'ai lui téléphoné.
Je l'ai téléphoné.
J'ai le téléphoné.

Je ne lui ai pas téléphoné.
Je lui n'ai pas téléphoné.
Je n'ai lui pas téléphoné.
Je ne l'ai pas téléphoné.

Je leur ai téléphoné.
Je leur ai téléphonés.
J'ai leur téléphoné.
Je les ai téléphoné.
Je les ai téléphonés.

Je ne leur ai pas téléphoné.
Je ne leur ai pas téléphonés.
Je n'ai leur pas téléphoné.
Je leur n'ai pas téléphoné.
Je n'eux ai pas telephoné.
Je ne les ai pas telephonés.
Je ne les ai pas telephoné.
Je les n'ai pas telephonés.

Je n'ai pas pensé à lui.
Je n'ai pas pensé de lui.

Je n'ai pas pensé à eux.
Je n'ai pas pensé à leur.
Je n'ai pas pensé à ils.

Il nous accompagne à la gare.
Il nous accompagnons à la gare.
Lui nous accompagne à la gare.

C'est moi.
C'est je.
C'est me.

Il est chez eux.
Il est chez leur.
Il est chez ils.
Il est chez les.

J'y habite depuis quinze ans.
J'en habite depuis quinze ans.
Je là habite depuis quinze ans.
J'habite y depuis quinze ans.

Elle y va de temps en temps.
Elle en va de temps en temps.
Elle là va de temps en temps.
Elle va y de temps en temps.

J'en suis très content.
J'y suis très content.
Je suis en très content.

Non, il n'y en a pas.
Non, il n'en y a pas.
Non, il en n'y a pas.

Ça ne m'étonne pas.

Ce ne m'étonne pas.

Ça me n'étonne pas.

Yvonne se couche à 10 h et se lève à 6 h.

Yvonne la couche à 10 h et la lève à 6 h.

Yvonne lui couche à 10 h et lui lève à 6 h.

Yvonne s'est couchée à 10 h et s'est levée à 6 h.

Yvonne s'ai couché à 10 h et s'ai levé à 6 h.

Yvonne est couchée à 10 h et est levée à 6 h.

Yvonne ai couché à 10 h et ai levé à 6 h.

Yvonne l'est couchée à 10 h et l'est levée à 6 h.

Yvonne est se couchée à 10 h et est se levée à 6 h.

Yvonne est couchée se à 10 h et est levée se à 6 h.

Tu t'est couchée à 10 h et t'est levée à 6 h.

Tu t'est couchée à 10 h et t'est levé à 6 h.

Tu t'est couché à 10 h et t'est levée à 6 h.

Elle s'était trompée de jour.

Elle s'avait trompé de jour.

Elle s'était trompé de jour.

Elle était trompée de jour.

Pierre et Monique se connaissent depuis deux ans.

Pierre et Monique connaissent depuis deux ans.

Françoise aime son petit chien.

Françoise aime se petit chien.

Françoise aime sa petit chien.

Françoise aime sa petite chien.

Bernard répare sa moto.

Bernard répare son moto.

Bernard répare se moto.

Nous partons ce soir avec nos enfants et notre ami, Daniel.
Nous partons ce soir avec nos enfants et notre ami, Daniel.

Ce n'est pas mon journal; c'est le tien.
Ce n'est pas ma journal; c'est la tienne.
Ce n'est pas mon journal; c'est le tien.

C'est ma chambre et la tienne.
C'est ma et ta chambre.
C'est ma chambre et le tien.

Ces garçons habitent à Bordeaux.
Ce garçons habitent à Bordeaux.
Ces garçon habitent à Bordeaux.

Cet hôtel est trop cher.
Ce hôtel est trop cher.
Cette hôtel est trop cher.

La villa des Dumont, c'est celle-là.
La villa des Dumont, c'est celui-là.

M. Ribot a été marié deux fois, d'abord à une Autrichienne, ensuite à une Hollandaise; celle-ci était blonde et celle-là était brune.

M. Ribot a été marié deux fois, d'abord à une Autrichienne, ensuite à une Hollandaise; celle-là était blonde et celle-ci était brune.

M. Ribot a été marié deux fois, d'abord à une Autrichienne, ensuite à une Hollandaise; celui-ci était blonde et celui-là était brune.

Elle a deux sœurs qui sont très musiciennes.
Elle a deux sœurs que sont très musiciennes.
Elle a deux sœurs qui est très musicienne.

J'ai des disques que je joue presque tous les jours.
J'ai des disques qui je joue presque tous les jours.

Claude a acheté la voiture de sport dont il avait envie.
Claude a acheté la voiture de sport qu'il avait envie.
Claude a acheté la voiture de sport quelle il avait envie.

Claude a acheté la voiture de sport de laquelle il avait envie.

Je ne sais pas quelle est son adresse.

Je ne sais pas quel est son adresse.

Je ne sais pas quoi est son adresse.

Je ne sais pas qui est son adresse.

Quelle est votre adresse?

Quel est votre adresse?

Quoi est votre adresse?

Qu'est-ce que est votre adresse?

Tu parles de qui?

Tu parles dont?

J'ai passé tout l'été à Paris.

J'ai passé toute l'été à Paris.

J'ai passé tous l'été à Paris.

J'ai passé tout été à Paris.

J'ai passé tout d'été à Paris.

Tous les Parisiens sont gentils.

Toutes les Parisiens sont gentils.

Tout les Parisiens sont gentil.

Tous Parisiens sont gentils.

Tous des Parisiens sont gentils.

Tu vois quelque chose?

Tu vois quelqu'un chose?

Je ne vois personne.

Je vois personne.

Je ne vois quelqu'un.

Je n'ai rencontré personne.

Je n'ai personne rencontré.

J'ai rencontré personne.

Personne n'a téléphoné.

Person n'a téléphoné.

Rien n'a téléphoné.

Je n'entends rien.

J'entends rien.

Je n'ai rien mangé.

J'ai rien mangé.

Il ne s'est rien passé.

Il se n'est rien passé.

Il ne s'est passé rien.

Il s'est rien passé.

Il s'est passé rien.

Rien n'est arrivé.

Rien est arrivé.

Aucune est arrivé.

Ils quittent l'école à 4 heures.

Ils quitte l'école à 4 heures.

Je me couche vers 10 heures.

Je couche vers 10 heures.

Nous sommes rentrés à la maison à 5 heures.

Nous sommes rentré à la maison à 5 heures.

On est rentrés à la maison à 5 heures.

Nous avons rentré à la maison à 5 heures.

Nous avons rentrés à la maison à 5 heures.

Ils quittaient l'école à 4 heures.

Ils quittait l'école à 4 heures.

Ils dînaient à 7 heures.

Ils dinaient à 7 heures.

Nous les jetterons demain.

Nous les jetons demain.

Nous les jettera demain.

Nous les jetter demain.

Elle les achètera demain.

Elle les achetera demain.

Marcel choisit une cravate pour son père.

Marcel choise une cravate pour son père.

Marcel choisite une cravate pour son père.

Tu avais rempli ton verre d'eau minérale.

Tu étais rempli ton verre d'eau minérale.

Je me réjouis de votre succès.

Je me réjouis à votre succès.

Je réjouis de votre succès.

Ils attendent l'autobus.

Ils attendrent l'autobus.

Ils attend l'autobus.

Je descends dans la rue.

Je descende dans la rue.

Je descend dans la rue.

Nous nous sommes rendus au marché.

Nous nous avons rendu au marché.

Nous nous sommes rendu au marché.

Nous sommes rendus au marché.

Nous avons rendu au marché.

Ils vendront des fleurs.

Ils vendreont des fleurs.

L'année dernière, je suis allée en France.

L'année dernière, j'ai allé en France.

Demain soir, nous irons au théâtre voir une pièce d'Ionesco.
Demain soir, nous irons au théâtre voir une pièce d'Ionesco.
Demain soir, nous irons au théâtre pour voir une pièce d'Ionesco.
Demain soir, nous irons au théâtre voir une pièce d'Ionesco.

Je sais ce que je dois faire, mais je ne peux pas me décider.
Je sais ce que je dois faire, mais je ne peux pas me décider.
Je sais ce que je dois faire, mais je ne peux pas me décider.
Je sais ce que je dois faire, mais je ne peux pas me décider.

Je savais ce que je devais faire, mais je ne pouvais pas me décider.
Je savais ce que je devais faire, mais je ne pouvais pas me décider.
Je savais ce que je devais faire, mais je ne pouvais pas me décider.
Je savais ce que je devais faire, mais je ne pouvais pas me décider.

Elles dorment jusqu'à 7 heures.
Elles dorment jusqu'à 7 heures.

Elle est sortie de sa chambre.
Elle est sortie de sa chambre.
Elle est sortie de sa chambre.

Il avait pris une douche dans la salle de bains.
Il avait pris une douche dans la salle de bains.

Ils n'avaient pas dîné avec les enfants.
Ils n'avaient pas dîné avec les enfants.
Ils n'avaient pas dîné avec les enfants.
Ils n'avaient pas dîné avec les enfants.

Demain, il dînera avec M. Dumas.
Demain, il dînera avec M. Dumas.
Demain, il va dîner avec M. Dumas.

Il y avait longtemps que les Mouton voulaient faire un voyage dans les pays scandinaves.
Il y avait longtemps que les Mouton ont voulu faire un voyage dans les pays scandinaves.
Il y avait longtemps que les Mouton avaient voulu faire un voyage dans les pays scandinaves.

Roland cherche depuis quelques semaines une chambre dans le Quartier Latin.
Roland a cherché depuis quelques semaines une chambre dans le Quartier Latin.

Elle vient de le commencer.
Elle vient à le commencer.
Elle vient du commencer.
Elle vient au commencer.

Elle écrit à sa tante en regardant la télé.
Elle écrit à sa tante pendant regarder la télé.
Elle écrit à sa tante pendant qu'elle regardant la télé.
Elle écrit à sa tante en regarder la télé.

J'aide mon frère en traduisant les mots difficiles.
J'aide mon frère traduire les mots difficiles.
J'aide mon frère à traduire les mots difficiles.
J'aide mon frère de traduire les mots difficiles.

S'il n'était pas malade, il travaillerait.
S'il n'était pas malade, il travaille.
S'il n'est pas malade, il travaille.
S'il ne serait pas malade, il travaillerait.
S'il n'était pas malade, il travaillait.

Paul espère qu'il pourra acheter un bateau à voiles.
Paul espère qu'il pourrait acheter un bateau à voiles.

Les voleurs sont surprises par la concierge.
Les voleurs ont surprises par la concierge.

Le decision ne sera prise que demain.
Le decision ne aura prise que demain.

Ils ont été reconnus tout de suite.
Ils sont été reconnus tout de suite.
Ils ont été reconnu tout de suite.
Ils ont eu reconnu tout de suite.

Il faut que tu répondes à cette lettre.
Il faut que tu réponds à cette lettre.
Il faut que tu répondras à cette lettre.
Il faut que tu répondrais à cette lettre.

Il veut qu'il joue au tennis.
Il veut qu'il jouera du tennis.
Il veut qu'il jouerait de tennis.

J'espère que tu réponds à cette lettre.
J'espère que tu répondes à cette lettre.
J'espère que tu répondras à cette lettre.
J'espère que tu répondrais à cette lettre.

Je vous ferait un petit plan pour que vous ne risquiez pas de vous tromper.
Je vous ferait un petit plan pour que vous ne risquez pas de vous tromper.
Je vous ferait un petit plan pour que vous n'aviez pas risqué de vous tromper.

Nous sommes contents que vous puissiez venir.
Nous sommes contents que vous puissiez venir.
Nous sommes contents que vous pouvez venir.
Nous sommes contents que vous pourriez venir.

Je ne crois pas qu'il y ait quelque chose d'intéressant à la télé.
Je ne crois pas qu'il y a quelque chose d'intéressant à la télé.
Je ne crois pas qu'il y aura quelque chose d'intéressant à la télé.
Je ne crois pas qu'il y aurait quelque chose d'intéressant à la télé.

Je crois qu'il y a quelque chose d'intéressant à la télé.
Je crois qu'il y ait quelque chose d'intéressant à la télé.
Je crois qu'il y aura quelque chose d'intéressant à la télé.
Je crois qu'il y aurait quelque chose d'intéressant à la télé.

Si riche qu'elle soit, ta tante n'achètera pas cette villa.
Si riche qu'elle est, ta tante n'achètera pas cette villa.

Que Lucien soit amoureux, tout le monde le sait.

Que Lucien est amoureux, tout le monde le sait.

Il faut tourner à droite!

Il faut que tourner à droite!

Il faut tourner de droite!

Je n'a jamais entendu parler d'une chose pareille.

Je n'a pas jamais entendu parler d'une chose pareille.

Je n'a jamais entendu à parler d'une chose pareille.

Je n'a jamais entendu de parler d'une chose pareille.

Je n'a jamais entendu quelqu'un parler d'une chose pareille.

Partir d'ici serait de la folie.

De partir d'ici serait de la folie.

A partir d'ici serait de la folie.

Que partir d'ici serait de la folie.

Travailler, c'est nécessaire.

De travailler, c'est nécessaire.

Travailler est nécessaire.

Que travailler, c'est nécessaire.

Que travailler est nécessaire.

C'est nécessaire de travailler.

C'est nécessaire travailler.

C'est nécessaire que travailler.

C'est nécessaire à travailler.

Vouloir, c'est pouvoir.

De vouloir, c'est de pouvoir.

Que vouloir, c'est que pouvoir.

À vouloir, c'est à pouvoir.

Comment faire pour éviter l'inflation?

Comment ferait pour éviter l'inflation?

Comment fait pour éviter l'inflation?

Il va essayer de passer avant midi.

Il va essayer à passer avant midi.
Il va essayer passer avant midi.
Il va essayer que passer avant midi.

N'oublie pas de me téléphoner ce soir.
N'oublie pas de moi téléphoner ce soir.
N'oublie pas me téléphoner ce soir.
N'oublie pas que me téléphoner ce soir.

Vous avez tort d'insister.
Vous avez tort de insister.
Vous avez tort à insister.

Il est difficile de trouver un appartement.
Il est difficile trouver un appartement.
Il est difficile à trouver un appartement.

Le chauffeur de taxi a accéléré au lieu de freiner.
Le chauffeur de taxi a accéléré au lieu de freiné.
Le chauffeur de taxi a accéléré au lieu à freiner.

Avant de rentrer à Paris, M. Chambon veut passer quelques jours à Bruxelles.
Avant rentrer à Paris, M. Chambon veut passer quelques jours à Bruxelles.
Avant à rentrer à Paris, M. Chambon veut passer quelques jours à Bruxelles.
Avant que rentrer à Paris, M. Chambon veut passer quelques jours à Bruxelles.
Avant de rentrer de Paris, M. Chambon veut passer quelques jours à Bruxelles.
Avant de rentrer à Paris, M. Chambon veut passer quelques jours aux Bruxelles.

Le portier va vous aider à monter vos bagages.
Le portier va vous aider de monter vos bagages.
Le portier va vous aider monter vos bagages.
Le portier va vous aider à monter vôtres bagages.

Elle n'a pas encore appris à lire et à écrire.
Elle n'a pas appris encore à lire et à écrire.
Elle n'a encore appris à lire et à écrire.
Elle n'a pas encore appris de lire et d'écrire.
Elle n'a pas encore appris de lire et écrire.

Elle n'a pas encore appris comment lire et écrire.

Ce jeune ménage a acheté une machine à coudre et une machine à faire la vaisselle.

Ce jeune ménage a acheté une machine de coudre et une machine de faire la vaisselle.

Ce jeune ménage a acheté une machine pour coudre et une machine pour faire la vaisselle.

Ce jeune ménage a acheté une machine qui coudre et une machine qui faire la vaisselle.

Nous sommes prêts à payer une grosse somme pour trouver un appartement dans le centre.

Nous sommes prêts de payer une grosse somme pour trouver un appartement dans le centre.

Nous sommes prêts payer une grosse somme pour trouver un appartement dans le centre.

Nous sommes prêts à payer une grosse somme à trouver un appartement dans le centre.

Nous sommes prêts à payer une grosse somme de trouver un appartement dans le centre.

Mon père est le seul à connaître mon secret.

Mon père est le seul de connaître mon secret.

Mon père est le seul qui connaît mon secret.

Il est difficile de comprendre les gens qui parlent vite.

Il est difficile à comprendre les gens qui parlent vite.

Il est difficile comprendre les gens qui parlent vite.

Il est difficile que comprendre les gens qui parlent vite.

Mme Calot est difficile à comprendre.

Mme Calot est difficile de comprendre.

Mme Calot est difficile comprendre.

Mme Calot est difficile que comprendre.

Personne ne pourra me forcer à payer.

Personne ne pourra me forcer de payer.

Personne ne pourra me forcer payer.

Personne pourra me forcer à payer.

Nous sommes forcés de payer.

Nous sommes forcés à payer.

Nous sommes forcés payer.

Ella a demandé à réfléchir avant de se décider.

Ella a demandé de réfléchir avant de se décider.

Elle a demandé à son amie de réfléchir.
Elle a demandé à son amie à réfléchir.
Elle a demandé de son amie de réfléchir.
Elle a demandé de son amie à réfléchir.

La jeune fille est partie sans rien dire.
La jeune fille est partie sans rien à dire.
La jeune fille est partie sans rien dit.
La jeune fille est partie sans rien a dit.

Est-ce que les banques sont ouvertes le samedi?
Est-ce que les banques sont ouverte le samedi?
Est-ce que les banques ont ouverte le samedi?

Claire était déjà sortie.
Claire était déjà sorti.

Elle et Jean étaient allés au cinéma.
Elle et Jean étaient allé au cinéma.
Elle et Jean était allés au cinéma.
Elle et Jean était allé au cinéma.
Elle et Jean étaient allées au cinéma.

Ma mère a été surprise d'entendre ma voix.
Ma mère a été surpris d'entendre ma voix.

J'ai fait mes devoirs.
J'ai faits mes devoirs.

Je les ai faits.
Je les ai fait.
J'ai les faits.

Madame Mollet s'est trompée de train.
Madame Mollet s'est trompé de train.

Elle s'est trompée de train.

Elle s'est trompé de train.

Ils se sont téléphoné.

Ils se sont téléphonés.

Ils se sont vus.

Ils se sont vu.

Réflexion faite, je ne partirai pas aujourd'hui.

Réflexion fait, je ne partirai pas aujourd'hui.

La conduite de Marianne est inquiétante.

La conduite de Marianne est inquiétant.

C'est la maison de mon père.

C'est la maison à mon père.

A côté de la chapelle, il y a un vieux chêne.

A côté la chapelle, il y a un vieux chêne.

A côté à la chapelle, il y a un vieux chêne.

A quelle heure partirons-nous?

A quelle heure partirons nous?

Quelle heure partirons-nous?

Je suis né en octobre.

Je suis né à l'octobre.

Je suis né à octobre.

Je suis né d'octobre.

On s'approche de Lyon.

On s'approche à Lyon.

On s'approche Lyon.

Elle a ouvert son appartement parisien à tous leurs amis.

Elle a ouvert son parisien à tous leurs amis.

Je ne profiterai pas de ma liberté.
Je ne profiterai pas ma liberté.
Je ne profiterai pas de je liberté.

La clé reste toujours sur la porte.
La clé reste toujours sur dans la porte.
La clé reste toujours la porte.
La clé reste toujours dans la porte.
La clé reste reste toujours sur la porte.
La clé reste tou jours sur la porte.
La clé toujours sur la porte.

On a besoin de semoule de couscous.
On a besoin de semoule couscous.
On a besoin semoule de couscous.
On a besoin à semoule de couscous.

Il fait terriblement chaud aujourd'hui.
Il fait terrible chaud aujourd'hui.

Il veut aller en Italie.
Il veut en Italie.
Il veut va en Italie.
Il veut peut aller en Italie.

Il l'apprécie.
Il s'apprécie.
Il lui apprécie.

Il faut que je le fasse.
Il faut je le fasse.
Il faut que le fasse.

Je veux bien, a répondu sa femme.
Je veux bien, sa femme a répondu.

Personne ne sait à qui est cette serviette.
Personne ne sait à qui cette serviette est.

Grande fut sa surprise à cette nouvelle.

Grande sa surprise fut à cette nouvelle.

Telle est mon opinion.

Telle mon opinion est.

Cet homme, je le connais.

Cet homme, je connais.

Cet homme je le connais.

Cet homme, je le connais..

Cet homme. je le connais.

Une femme raconte sa vie avec ses trois enfants Grégoire, Charlotte, et Dorothée.

Une femme raconte sa vie avec ses trois enfants Grégoire, Charlotte et Dorothée.

Les thèmes les plus importants sont: l'individualisme contre la solidarité; l'obéissance aux règles traditionnelles contre l'anarchie.

Les thèmes les plus importants sont: l'individualisme contre la solidarité, l'obéissance aux règles traditionnelles contre l'anarchie.

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