# Observations on Grammar for Translations

## Language differences and possible problems

### Nouns

* Articles and genders: In English, you only have the definite article “the” and the indefinite article “a” or “an”, in French each noun either has the definite article “le” or “la” and the indefinite article “un” or “une”. (e.g. “the father” – “le père”; “the mother” – “la mère”)

Since these generally don’t follow any general patterns or rules, the only way to correctly implement the articles would be to *manually* assign *each* noun its correct gender and then use that info to use the right article.

### Adjectives

* Gender: Problems closely connected to the ones the nouns have as well. In French, the adjective’s ending changes depending on the gender of the noun and whether it’s singular or plural.   
  E.g. “le livre *bleu*” – “the blue book”, “les livres *bleus*” – “the blue books”; “la maison *bleue*” – “the blue house”, “les maisons *bleues*” – “the blue houses”
* Order of noun and adjective: In English, the adjective always proceeds the noun it’s relating to, in French they *generally* follow the noun, BUT there are quite a few exceptions of fairly important French adjectives that go against that rule (such as “petit”, e.g. “~~la maison petite~~” is incorrect, it has to be “la petite maison”)

### Verbs

* Conjugation of verbs: In French verbs generally have a different conjugated form for each of the six pronouns, while in English there’s only the infinitive (basic form of a verb) and for 3rd person singular the -s ending.   
  There are a few rules on how to conjugate French verbs, but they’re generally difficult to learn. Verbs can be grouped together depending on the ending of their infinitives, the most common endings being -er, -re and -ir. That unfortunately does not suffice, since in these bigger ending groups, there are sets of sub groups that despite ending on the same letters are conjugated differently, e.g. “sortir” and “finir”. That’s primarily because there are many irregular verbs in French.
* Tenses: Similar problems as with general conjugation of verbs, each tense of a verb generally has 6 forms and there are yet again many irregular forms. There’s also some verb forms and tenses in French that do not really exist in English or work quite differently, such as the French *conditionnel* and the *subjonctif*.
* The three “You” s: In English, there’s only one “you” pronoun for which there are three possible French translations: The informal singular “tu” which would be used when talking to friends, etc., the formal singular “vous” which is for talking to strangers or authoritarian figures, and then the plural “vous” used to address more than one person. General use cases which accentuate the difference for singular “tu” and “vous” happen at school where teachers address younger students with “tu”, but students address their teacher with “vous”.
* Prepositions: There are quite a few French verbs that are followed by specific prepositions, usually “à” or “de”. These would not be necessarily translated literally into English, another key grammar problem here being that in French that are stricter rules for transitive/intransitive verbs and direct/indirect objects (details on these issues omitted, as they’re quite complex). Examples where prepositions can be found in the French word blocks but not in the English ones would be, e.g. “aider *à* faire quelque chose”– “to help to do something” or “oublier de faire quelque chose” – “to forget to do something” (in both these constructions “faire” – “to do” would be replaced by another verb)

## Conclusion: translating from French to English

* Gender and articles wouldn’t necessarily be a problem when translating from French to English as it would generally be translated to “the” or “a” (“an” would require the program to see if the following noun starts with a vowel although there are exceptions where consonants at the beginning of a word are silent and “an” would be used instead of “a”)
* Verbs and adjectives can come in “non-standard” forms in French, the easiest way for the program to still be able to recognise each form (without saving it with its translation individually in the dictionary file) would be to have the program ignore word endings. When verbs are conjugated in French they usually keep a set word stem, if the word stems of an infinitive or a standard adjective are compared to the stems of the conjugated or changed form the translation process should generally work.
* When translating French adjectives, somehow the program would be required to move the adjective in front of the noun in the English translation (otherwise false sentences like “The book blue is interesting” could appear). This is most likely not achievable for our program.
* Dealing with tenses is likely not possible as it would require the program to be able to access and recognise conjugation rules.
* For the three different types of “you” there shouldn’t be a problem when translating from French to English.
* To deal with prepositions that would not be literally translated from French to English, the prepositions would have to be saved as part of the verbs. This is usually also how verbs are learned in French, with their respective prepositions. This also would require manually specifying for each verb and is thus unlikely to achieve.

## Conclusion: Translating from English to French

* Translating nouns from English to French with the correct articles would require us to *manually* assign *each* noun its correct gender and then use that info to use the right article. This is unlikely to be achieved due to the size of the database.
* For adjectives and conjugated verbs, the program would have to be able to recognise the gender of the noun or the pronoun they refer to. For the verb, it would also have to abide very complex conjugation rules. This seems unlikely to be achieved.
* The order of nouns and adjectives would again be a problem (see above).
* When dealing with the three “You” s the easiest way would be to just always use “vous” as it can be singular and plural and is still conjugated the same way. The difference of “tu” and “vous” is based entirely on social context and is thus not understandable (to a machine) unless the situation is specified.

## Solution Pitch

When trying to solve the problems stated above one method would be to work with a more complex dictionary database. Each word would have to be assigned its word type (noun, adjective, verb, etc.) as value and the program would have to be provided an extensive list of ways to conjugate verbs of each existing verb group for each tense. Irregular verbs would most likely have to be added in individually with their conjugated forms. Each noun would also require its gender as a value.

When provided with a sentence the program would have to recognise different word parts and types it’s constructed of and then depending on certain orders of word types, etc. apply specific translation and grammar rules. Unfortunately, implementing this sort of database would require extensive knowledge of the French and English language, as well as a bigger team and more time.