

A Critical Evaluation of Google Translation: The Case of English-Sorani Kurdish Translation

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ABSTRACT

Google Translate is a machine translation service that is frequently and actively utilized worldwide. Sorani Kurdish, otherwise known as Central Kurdish, was officially added to Google Translate in May 2022. At the outset of the launch of Sorani Kurdish translation services, it is crucial to evaluate the quality of the translation and pave the way for improvements, if necessary. Taking into consideration both linguistic and cultural aspects, this paper aims to critically assess the accuracy of English-Sorani Kurdish translations produced by Google Translate. For this purpose, the paper has adopted a textual analysis approach based on the notion of equivalence to critically analyze samples of translations generated by Google Translate. The results suggest that Google Translate is largely accurate at morphological and syntactic levels but improvements are needed to overcome the minor deficiencies detected in rendering future perfect and perfect progressive tenses, third conditional sentences and passive tenses (especially in the case of progressive and perfect progressive tenses). With regard to the semantic level, Google Translate has proved accurate in processing non-equivalence terms and polysemous words, but it has assumed an utter failure in translating idioms and proverbs. With regard to the cultural level, in over third-fourths of instances, Google Translate renders English cultural terms into Sorani Kurdish accurately, whereas in nearly one-fourth of instances, it offers inappropriate translation. As far as English into Sorani Kurdish translation is concerned, Google Translate can be deemed effective as a supportive translation tool but it is far from being perfect, and continuous improvements will be needed to respond to the errors and deficiencies unearthed in this study.

KEY WORDS: Google Translate, English-Kurdish translation, Sorani Kurdish, linguistic level, Cultural level

1. INTRODUCTION:

Advances in digital technology in the last two decades or so have influenced almost all aspects of human life. Modern digital technology helps us not only in communications and social life, but also in professional life, including translation profession. While translators in the past relied entirely on their translation competence and utilized traditional translation aids such as dictionaries and human expertise, with the turn of the new millennium, digital technology has come to play an increasingly important role in translation services. Translation in the digital age is characterized by:

The omnipresence of online translation options, the

proliferation of smartphone translation apps, the relentless drive towards automation in large-scale translation projects, the fundamental changes in literacy practices as reading migrates from page to screen, the unforgiving instantaneity of electronic communication as responses are demanded 24/7, the ever-changing wardrobe of digital translation props such as endlessly mutating translation memory software. (Cronin, 2013, p.1)

Notwithstanding, the role of digital technology is not assumed to fully replace human competence and expertise but to accelerate the translation process by finding equivalents for words, expressions, phrases, etc. in a rather automated and mechanical way by means of computerized algorithms. The algorithms are designed "to analyze the sentence structure, sentence composition and part of speech of the original sentence, and complete the translation task after understanding the complete syntactic structure" (Qu, 2021, p. 1). Among the many computer-aided translation tools and machine translation services, the role and significance of Google Translate is remarkable.

Koya University Journal of Humanities and Social Sciences (KUJHSS), Volume 5, Issue 1, 2022.



Received 04 Aug 2022; Accepted 16 Nov 2022,
Regular research paper: Published 30 Jun 2022

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1.1 Research Questions and Hypotheses

This paper sets out to critically evaluate the quality of English-Sorani Kurdish translations produced by Google Translate. Taking a textual analysis approach based on the notion of equivalence, the study specifically aims to answer the following questions:

1) To what extent are English-Sorani Kurdish translations produced by Google Translate accurate at the linguistic as well as cultural level?

2) What are the linguistic and/or cultural areas that particularly require improvements?

The research hypothesizes that Google Translate can be a useful auxiliary tool to accelerate the translation process and help producing translation quickly and efficiently; however, the translation products will require human translators' intervention and editing to ensure translation accuracy.

1.2 Significance of the Study

There are approximately 10 million Sorani Kurdish speakers in the world and thousands of them use Google Translate for all sorts of purposes. In fact, "Kurdish speakers demanded the inclusion of Sorani in Google Translate for years" (Lucente, 2022). As Sorani Kurdish is currently available in Google Translate, the quality of the translation is crucially important to make sure the end-users of the service get accurate translation of the information they want to translate from and into Sorani Kurdish. Covering both linguistic and cultural levels, this paper is a timely effort to identify deficiencies and inaccuracies, if any, in English-Sorani Kurdish translations generated by Google Translate. The results of the paper are hoped to ultimately pave the way for the improvement of the quality of such translations.

2. MACHINE TRANSLATION AND GOOGLE TRANSLATE

Thanks to advances in technology, several computerized programs are currently available to offer translation services in dozens of languages. Machine translation (henceforth MT) is done automatically by finding equivalents of source language translation units in the target language. MT may find the correct meaning or multiple meanings of a translation unit, but it may fail to select the right usage or sense of polysemous words and idiomatic expressions in a given context. Therefore, the translation is often mechanical and not artistic or communicative, i.e. the basic principle of the 'art' of translation is often missing. Professional translators use their skills, competence and experience to find the right meaning and they employ their craft to compose the resultant translation in an adequate and communicative way. MT tools, on the other hand, are thought to be less effective when dealing with semantically complex and

aesthetically composed texts.

Google Translate is today one of the most popular online translation services used by millions of people worldwide seeking information written in other languages. It is considered a true game-changer in the realm of translation for practitioners as well as information consumers. Google Translate currently supports 133 languages spoken around the globe. In daily life, "the practical utility of Google Translate and similar technologies is undeniable" (Hofstadter, 2018). Google statistics show that around 200 million people use Google Translate on a daily basis.

3. MATERIAL AND METHODOLOGY

The material used in this study consists of representative examples of English-Sorani Kurdish translations produced by Google Translate. Sufficient examples are chosen to address particular linguistic or cultural areas of concern. The resultant translations are directly taken from Google Translate without any modification and presented for analysis. Where necessary, the Kurdish examples are also presented in Latin alphabet and morphemic analysis is provided to illustrate particular morphological discrepancies. In addition to highlighting errors and mistranslations, correct translation of terms, expressions and utterances are provided, where necessary.

As noted above, the paper explores both linguistic and cultural aspects of translation. As far as the linguistic aspect is concerned, the three linguistic levels of morphology, syntax and semantics, which are relevant in translation studies, are brought to discussion. Pragmatics is excluded in the study because pragmatics is concerned with meaning beyond literal meaning, which is a complicated and problematic area in human translation let alone in machine translation. Relevant examples of English-Sorani Kurdish translations are taken from Google Translate to explore the three chosen linguistic levels and their sub-levels. Based on the notion of translation equivalence, the resultant translation is designated as 'accurate' where the meaning of a translation unit is effectively conveyed and the translation choice is expected to be the option normally used by human translators. On the other hand, the translation is designated as 'inaccurate' where a translation unit gives a different or wrong meaning.

With regard to the cultural aspects, three selected extracts are taken from Kate Fox's (2014) book, *Watching the English: The Hidden Rules of English Behaviour*, which explores the British society and is impregnated with cultural terms. The extracts are translated into Sorani Kurdish using Google Translate and the cultural terms are highlighted in both the source and target languages (see the Appendix). Based on the notion of translation

equivalence, the translation of the cultural terms is examined to ascertain whether each cultural term is translated correctly (designated as 'accurate') or mistranslated (designated as 'inaccurate').

In conducting the study, a textual analysis approach based on the notion of translation equivalence is adopted. This is considered to be the most appropriate approach to gauge the accuracy of target text translation segments compared with their source text counterparts. The notion of equivalence, which means 'equal value', focuses on the text and context rather than external factors. It is viewed "a key concept in translation theory and a useful yardstick in translation practice" (Rasul, 2015, p. 68). The approach tends to be more practical than other alternative approaches that take into consideration extra-textual factors such as the author, author's intention, readership, medium, place, time, motive and function (cf. Nord, 2005, p. 82).

4. ANALYSIS OF ENGLISH-SORANI KURDISH GOOGLE TRANSLATION

4.1 Linguistics Level

Three linguistic levels are particularly relevant in translation studies, viz. morphology, syntax and semantics. These three linguistic levels will be thoroughly examined below.

Morphology: it is defined as "the branch of grammar which studies the structure or forms of words, primarily through the use of the morpheme construct" (Crystal, 2008, p. 314). Morphology is divided into two major branches: inflectional and derivational.

Inflectional morphology: this branch deals with various types of functional and grammatical forms of the same word, created through inflectional affixes added to words/lexemes. In English, inflectional suffixes have several grammatical functions, such as creating plural form, forming possession and processing verb conjugations. These inflectional morphological functions will be elaborated on and exemplified below:

(a) **Plural form:** regular form of pluralization in English is simply to add the plural marker *s* to the end of singular nouns, e.g. *flower* > *flowers*. Regarding nouns that end with *y*, if the penultimate sound is a consonant, the noun will be pluralized by changing the *y* to *i* and then adding *es*, e.g. *library* > *libraries*. In Kurdish, on the other hand, singular nouns are pluralized by adding the plural marker suffix *-ان* - to the end of nouns, e.g. <*گولان*>. However, Kurdish plural nouns are normally expressed in the definite state, with the definite article *مکه* - preceding the plural marker *-ان* - and forming the definite plural form *- مکان*, e.g. <*گولەكان*>. To check the accuracy of Google Translate in processing pluralization, consider the ensuing examples:

- (1) a. She read the book. > کتیبه‌که‌ی خویندموه
Ktēb-ek-e-y xwênd-ewe.
Book-DEF-3rd SG read.PST-ITERATIVE
- b. She read the books. > کتیبه‌کانی خویندموه
Ktēb-ek(e)-an-y xwênd-ewe
Book-DEF-PL-3rd SG read.PST-ITERATIVE
- (2) a. I visited the library. > سهردانی کتبخانه‌کەم کرد.
Serdan-i ktêbxane-ke-m kird.
visit-IZF library-DEF-1st SG do.PST
- b. I visited the libraries. > سهردانی کتبخانه‌کانم کرد.
Serdan-i ktêbxane-ka-n-im kird.
visit-IZF library-DEF-PL-1st SG do.PST

As can be seen, the plural form is accurately reproduced in the Kurdish translation. These examples suggest that Google Translate is effective in processing plural forms when rendering from English into Sorani Kurdish. It is worth mentioning that Kurdish naturally uses singular form of nouns when they are preceded by cardinal numbers (cf. Rasul, 2019, p. 88). It is observed that Google Translate makes a shift from plural to singular and respects this grammatical convention when rendering from English into Sorani Kurdish, as shown in the example below:

- (3) Ari has visited five countries. > ئارى سهردانى پىنج ولاتى
کردووه.

Ari serdan-i penc wllat-i kirdwe.
Ari visit-IZF five country-1st SG do.PST-PRF

(b) **Possessive construction:** in English, there are two different ways to form possession constructions: *of* phrase and possessive 's. Both constructions correspond to the Kurdish Izafa ى- possessive structure, in which the possessee is linked to the possessor through the Izafa particle ى-. The following examples demonstrate the translation of possessive constructions between English and Sorani Kurdish by Google Translate:

- (4) Kamaran's father > باوكى کامران

bawk-i Kameran
father-IZF Kamaran

- (5) future of the world > داهاتووی جيھان

dahatw-i cihan
future-IZF world

The examples above reveal that Google Translate accurately renders English possessive constructions into Sorani Kurdish. When translating from the opposite direction, it was observed that باوكى کامران was inaccurately translated into *of* phrase construction as *father of Kamaran*, given the fact that *of phrase* is typically used in the case of inanimate possessors. However, this inaccuracy occurs only at the phrasal level; when the phrase باوكى کامران is used in a proper sentence, as in the following instance, Google Translate correctly processes the possessive construction:

- (6) Kamran's father is a carpenter. > باوكى کامران دارتاشه.

Bawk-i Kameran dartaş-e.
Father-IZF Kamaran carpenter-PRST

(c) Verb conjugations: this refers to how a verb changes to show different states, such as a different person, number or mood. In Table 1 below, both transitive and intransitive verbs are used to check the accuracy of Google Translate in processing verb conjugations from English into Sorani Kurdish.

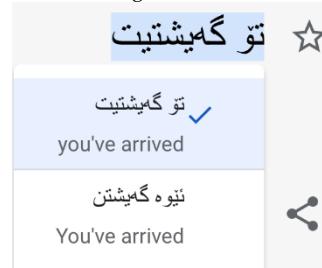
Table 1
Translation of verb conjugations from English into Sorani Kurdish
by Google Translate

Grammatical Person	English Sentence	Kurdish Translation
Intransitive verb	1 st person singular I arrived.	گەشتم. Gest-im
	1 st person plural We arrived.	گەشتن. Geyşt-in
	2 nd person singular You arrived.	To geyşt-it
	2 nd person plural You arrived.	You arrive.PST-2 nd SG
	3 rd person singular He arrived.	To geyşt-it
	3 rd person plural They arrived.	You arrive.PST-2 nd SG
	1 st person singular I sent the email.	نەو گەشت. Ew geyşt
	1 st person plural We sent the email.	He arrive.PST.3SG
	2 nd person singular You sent the email.	Geyşt-in
Transitive verb	2 nd person plural You sent the email.	Arrive.PST-3 rd PL
	3 rd person singular He sent the email.	نیمهێلەکەم نارد. Imeyll-ek-e-m nard.
	3 rd person plural They sent the email.	نیمهێلەکەم نارد. Imeyll-ek-e-yan nard.
		Email-DEF-3 rd PL

First of all, Kurdish is a pro-drop language; pronouns are normally dropped in Kurdish sentences. Kurdish has two types of personal pronouns: free and bound. The free pronouns correspond to English subject pronouns and the bound pronouns agglutinate to the verb (in case of intransitive verbs) and the object (in case of transitive verbs) to indicate person and number (cf. Rasul, 2015, p. 96). Kurdish free pronouns are normally dropped in a sentence and are referred to by their corresponding bound pronouns. In the translation above, on three occasions the independent personal pronoun is dropped (first person singular, first person plural and third

person plural) and the pronoun is retained in three cases (second person singular, second person plural and third person singular). This has been consistent for both the transitive and intransitive verbs. It is crucial to highlight that Google Translate does not seem to differentiate between second person singular and second person plural in the Kurdish translation – both cases are expressed in first person singular by default. However, Google Translate has an editing service, in which alternative options are given and users can choose the most appropriate one for a given context. In the example *you arrived*, the second person singular translation is given by default and the second person plural is also available as a second option, as shown in Figure 1 below:

Fig. 1.
Kurdish translation options for the sentence *you arrived* by Google Translate



As is clear, the two options in the figure above are followed by English translations in the past perfect tense while the original Kurdish entry was in the simple past tense. This can be ascribed to the fact that past simple in Kurdish normally corresponds to present perfect in English.

Another deficiency has occurred in the translation of the sentence *I arrived*, which is translated as گەشت. While this form of the verb is used in spoken language, the standard grammatical form is گەشتە.

Derivational morphology: this is concerned with the formation of new words through affixation, which results in a change in the word class. Derivational morphology involves a process in which derivational morphemes (affixes) are added to words/lexemes to create new words with different word classes (cf. Mayer and Alexander 2016: 129). To ascertain the accuracy of Google Translate in processing derivational morphology between English and Sorani Kurdish, a wide range of possible word class changes are explored below:

1. noun > adjective (-al)

- I like nature. > من حەزم لە سروشە. Min hez-im le srwst-e. I like-1st SG in nature-PRST
- I like natural environment. > من حەزم لە ژینگەی سروشیتی. Min hez-im le jinge-y srwsty-e. I like-1st SG in environment-IZF natural-PRST

2. noun > adjective (-ly)

- He is a friend. > ئەمە ھاورنیيە.
Ew hawrre-ye.
He friend-3rd SG.PRST
- He is friendly. > ئەمە دۆستانیيە.
Ew dostane-ye.
He friendly-3rd SG.PRST

3. adjective > adverb (-ly)

- He is happy. > ئەمە کوره دلخوشه.
Ew kurr-e dilxoş-e.
that boy-DEF happy-3rd SG.PRST
- He left happily. > ئەمە بە خوشحالییەه رویشت.
Ew be xoşalli-yewe royst.
He with gladness go.3rd SG.PST

4. adjective > noun (-ness)

- The seminar hall is bright. > ھولى سيمينار مکه روناكە.
Holi siminar-ake rrwnak-e.
Hall-IZF seminar-DEF light-3rd SG.PRST
- The brightness comes from outside. > روناكىمە لە دەرمە دەيت.
Rrwnak-i-yeke-i le derewe dét.
Light-DEF-3rd SG from outside come.PRST-3SG

5. verb > adjective (-ing)

- The movie fascinated us. > فيلمەكە سەرسامى كە دىن.
Film-ake sersam-i kird-in.
Film-DEF surprise-3rd SG do.PST-2nd PL
- The movie was fascinating. > فيلمەكە سەرنجراكتىش بۇ.
Film-ake serincräkës bu.
Film-DEF fascinating was

6. verb > adjective (-ed)

- The lesson interested us. > وانەكە جىڭەي سەرنج بۇونىن.
Wane-ke jêge-y serinc bu-in.
Lesson-DEF place-IZF attention was-2nd PL
- We were interested in the lesson. > يىمە حىزمان لە وانەكە بۇو.
Eme hiez-man le wane-ke bu.
We like-2nd PL in lesson-DEF was

7. verb > noun (-ion)

- A local company constructed the bridge. > كۆمپانىيەكى ناوخويي پىردىكەي دروستكىد.
Kompanya-yeki nawxoyy pird-ake-y drustkird.
Company-INDEF-IZF internal bridge-DEF-3rd SG build.PST
- The construction of the bridge took three years. > دروستكىرنى پىردىكە سى سالى خاياباند.
Drwstkirn-i pird-ake sê salli xayand.
Building-IZF bridge-DEF three year-3rd SG last.PST

8. adjective > verb (-ize)

- In some countries hunting is legal. > لە هەندىك و لاتدا راواكىدن ياسابىيە.
Le hendek wllat-da rrawkirdn yasayy-e.
In some country-CASE hunting legal-3rd SG.PRST
- Some countries have legalized hunting. > هەندىك و لات راواكىدىن يە ياسابىي كەرددووه.

Hendek wllat rrawkirdnyan be yasayy
kirdwe.

Some country hunting-3rd PL with legal do.PST-PRF

As far as derivational morphology is concerned, Google Translate generally offers accurate translation in rendering different English word classes into their Sorani Kurdish counterparts. However, improvements are needed to respond to minor errors. For instance, in point 2, the word *friendly* is translated as دۆستانە, which is not wrong *per se*, but it had better be translated as خوشحالە. Likewise, improvement is required in point 4, in which *the brightness* is translated as روناكە with the Izafa marker being redundant. The only outright inaccurate translation occurs in point 6, where the sentence *The lesson interested us* is mistranslated into Kurdish as وانەكە جىڭەي سەرنج بۇونىن [the lesson we were interesting]. There are also a few cases that are not translated by direct equivalents, yet they demonstrate accurate translation. Consider point 3, where the adverb *happily* is translated into the phrase بە خوشحالیيە [with pleasure]. This can be considered an acceptable translation, which is likely to be used in human translation as well. Likewise, the verb *legalized* in point 8 is translated into the verb phrase بە ياسابىي كەرددووه [has been made legal], which can be deemed an acceptable translation.

Syntax: refers to the formation of proper sentences based on combining words, phrases and clauses. Syntax occupies a wide area of the grammar of any language. It obviously is beyond the scope of this paper to cover the entire syntax of English and Kurdish. Therefore, three crucial aspects of syntax will be investigated, namely: tenses, passive form and conditional sentences.

Tenses: different languages have different grammatical systems with regard to tenses. English has 12 tenses, few of which have one-to-one counterparts in Kurdish: some tenses are expressed by means of some other tenses. For example, Kurdish does not have future tenses but uses present tenses (sometimes making use of adverbs of time) to indicate futurity; the meaning of present progressive in Kurdish is accomplished through the adverb 'wa'. Table 2, below, shows the translation of the 12 English tenses into Sorani Kurdish generated by Google Translate.

As is obvious, the personal pronoun *I* is reproduced in the translation, which does not sound natural because, as stated above, Kurdish is a pro-drop language. Regarding the tenses, in the translation above, the Kurdish present simple tense is used to translate 'present simple', 'present progressive', 'future simple' and 'future progressive' tenses. Normally, time expressions are used to indicate progressiveness (e.g. لە تىستادا, وا ئۇمۇ / سېھى / تىستادا, وا ئۇمۇ / at the moment) and futurity (e.g. / سېھى / تىستادا, وا ئۇمۇ / at the moment) and futurity (e.g. / سېھى / تىستادا, وا ئۇمۇ / at the moment).

tomorrow), but this is not the case in the Google Translate examples.

Table 2
Translation of tenses from English into Kurdish by Google Translate

Tenses	English Sentence	Kurdish Translation
Present	Simple I play football.	من ياری توبی پین دەکمەن.
	Progressive I am playing football.	من ياری توبی پین دەکمەن.
	Perfect I have played football.	من ياری توبی پینچ کر دوووه.
	Perfect progressive I have been playing football.	من ماویەکە ياری توبی پینچ کر دوووه.
Past	Simple I played football.	من ياری توبی پینچ کرد.
	Progressive I was playing football.	من ياری توبی پینچ مەکر.
	Perfect I had played football.	من ياری توبی پینچ کر دوووه.
	Perfect progressive I had been playing football.	من ماویەکە ياری توبی پینچ مەکر.
Future	Simple I will play football.	من ياری توبی پین دەکمەن.
	Progressive I will be playing football.	من ياری توبی پین دەکمەن.
	Perfect I will have played football.	من ياری توبی پینچ کر دیتت.
	Perfect progressive I will have been playing football.	من ياری توبی پینچ دەکر.

Present perfect tense is accurately translated into its Kurdish counterpart, namely past perfect. Present perfect progressive tense, however, is translated into present perfect tense and the adverb of time [ماویەکە] [for a while] is added. This suggests that Google Translate is programmed in such a way that sets Kurdish 'present perfect progressive' tense apart from 'present perfect' tense by adding an adverb of time to indicate progressive meaning. It is questionable, however, why this is not done in the case of 'present progressive' tense. The three tenses of 'past simple', 'past progressive' and 'past perfect' are accurately rendered into their Kurdish counterpart tenses. These three past tenses do not pose difficulty either in Google Translate or human translation. On the other hand, 'past perfect progressive' is translated into 'past progressive' and the adverb of time [ماویەکە] [for a while] is added to retain the sense of progressiveness. The 'future perfect' tense is inconveniently translated as [(if) I would have played football], which obviously expresses a hypothetical state. Kurdish does not have a counterpart for English 'future perfect' tense, and it is possible to translate the tense only by taking a larger context into consideration. Interestingly, when the same sentence is used in a larger context, the Google Translate accurately rendered it by 'present perfect' tense used in a future context, as in the example below:

(7) *By the time you arrive, I will have played football.*
تاھو کاتھی دەگەيت، من ياری توبی پینچ کر دوووه.

Finally, the English 'future perfect progressive' tense is translated into Kurdish 'past progressive' tense, which is an obvious translation error.

Passive form: different languages have different grammatical structures to form passive tenses. Passive tense in English is constructed by using *verb to be* followed by past participle of the main verb. In Kurdish, the past passive tense is constructed by adding the suffix > شکىنرا -را to the present stem of a transitive verb (e.g. *was broken*), while the present passive tense is formed by adding the suffix > رى -رە to the present stem (e.g. *is (being) broken*) (cf. Thackston, 2010, p.63). In the following, a variety of representative examples are analyzed to check the quality of Google Translate in processing passive tenses between English and Kurdish.

Table 3
Translation of passive form from English into Kurdish by Google Translate

English Sentence	Kurdish Translation
The computer is repaired.	کۆمیپوتەر مەکە چاک دەکرێتەوە.
The computer is being repaired.	سەرقالی چاککر دەنھوەي کۆمیپوتەر مەکەيە.
The computer has been repaired.	کۆمیپوتەر مەکە چاک کراوەنھوە.
The computer was repaired.	کۆمیپوتەر مەکە چاککر ابایوە.
The computer was being repaired.	خەریکی چاککر دەنھوەي کۆمیپوتەر مەکە بۇو.
The computer had been repaired.	کۆمیپوتەر مەکە چاککر ابۇو وە.
The computer will be repaired.	کۆمیپوتەر مەکە چاک دەکرێتەوە.

Kurdish does not make differentiation between the zero and first conditionals; it makes use of the zero conditional structure for both types. In the examples above, both zero and first conditionals are accurately translated into Kurdish. Likewise, the second conditional is effectively rendered into Kurdish, conveying the same hypothetical sense. The problem, however, occurs in translating the third conditional sentence, which has resulted in a mistranslation. Whereas the consequence clause in the English sentence is translated into its Kurdish counterpart effectively, the past perfect conditional clause is mistakenly translated into present conditional clause [if I sleep early]. Thus, there is a mismatch between the tenses of the two clauses that has resulted in a nonsensical hypothetical situation. The correct translation of the sentence would be as follows:

(10) If I had gone to bed early, I would have caught the train.

ئەگەر زوو بخھوتیوو مايە، شەمەندەفەر مەکم دەگرت.

Semantics: translation is first and foremost concerned with meaning, thus semantics is at the core of translation theory and practice. Semantics covers a wide range of elements that are obviously beyond the scope of this paper. Therefore, this study specifically focuses on three crucial elements that are thought to pose translation difficulties, namely: non-equivalence terms, polysemous words and idioms and proverbs, on the other. Idioms can cause grave difficulties in human translation let alone machine translation. "Idioms ... are challenging to translate particularly from English into Kurdish because Kurdish is art-oriented" (Rahimi, Rasul and Mohammed, 2022, p. 93).

Non-equivalence terms: lack of equivalence at the lexical level (otherwise known as *lacuna*) is a constant problem in translation between many language pairs, especially English and Kurdish “which are distant in terms of linguistic systems and incongruent in terms of sociocultural norms and values” (Rasul, 2019, p. 60). To attest the efficacy of Google Translate in rendering lexical non-equivalence between English and Kurdish, a set of English words that do not have one-to-one counterparts in Kurdish are contextualized and translated by Google Translate, as follows:

Table 5

Translation of non-equivalence terms from English into Kurdish by Google Translate

English Sentence	Kurdish Translation
We took <u>taxi</u> to get to the conference venue.	بە تەکسی رۆیشتنێن بۆ ئامویی بگەینە شوینتی کونفرانسکە.
Akar wants to get a <u>part-time</u> job in a <u>media</u> outlet.	ناکار دەمیوتنت له دەزگاییکی میدیا بەریکی نیووکاتی پەدھەست پەھنیت.
Shilan is different from her <u>siblings</u> in that she has the potential to become a great figure.	شیلان جیاوازه لە خوشک و برائانی، چونکە تووانی ئامویی هەمیه بینتە کسماپانییکی گورە.
The <u>company</u> has made changes in its <u>system</u> of operation.	کۆمپانیاکە گورانکاری لە سیستەمی کارکردنی خوبیا کردووە.
The <u>ambulance</u> did not stop at the <u>traffic light</u> .	ئەمبولانسکە لە تر افیک لایتەکە نەھۆستا.

The ten underlined words in the English sentences in Table 5 above are considered non-equivalence terms, as they do not have literal equivalents in Kurdish. When translators encounter lacunae or lexical gaps, they resort to procedures other than literal translation. Google Translate seems to have been programmed to effectively do the same thing. Seven out of the ten selected terms are translated by borrowing, as follows:

- taxi > تەکسی
- conference > کونفرانس
- media > میدیا
- company > کۆمپانیا
- system > سیستەم
- ambulance > ئەمبولانس
- traffic light > تر افیک لایت

Here, translation by borrowing can be considered an acceptable option since this is what we expect from human translation as well. Besides, borrowing “is used as a practical translation procedure to tackle lacunae in the lexicon” (Rasul, 2015, p. 247). Google Translate has also effectively implemented other translation procedures, such as ‘expansion’ (*sibling* > *brother* and *sister*) and ‘generalization’ (*potential* > *ability*). However, it has failed to correctly translate the term *part-time*, rendering it literally as - نیووکات - which makes sense but sounds unfamiliar in the Kurdish lexicon. The term is tricky to translate; it does not have a direct equivalent in Kurdish and its borrowing (پارت تایم) is restricted to spoken language. All in all, Google Translate has been effective in translating nine out of

tern chosen English terms that do not have literal equivalents in Kurdish.

Polysemous words: polysemy is a semantic phenomenon defined as “one form (written or spoken) having multiple meanings that are all related by extension” (Yule, 2010, p. 120). To exemplify polysemy, Yule (*ibid.*) refers to three viable examples, namely: *head* (the object on top of your body, person at the top of a company or department), *foot* (of person, of mountain) and *run* (person does, water does). To ascertain Google Translate’s accuracy in translating polysemous words, these three polysemous words are chosen, with each term being used in different senses in separate sentences.

Table 6
Translation of polysemous words from English into Kurdish by Google Translate

English Sentence	Kurdish Translation
After the car accident, John felt pain in his <u>head</u> .	دوای رووداوی تۆزتەمیلەکە جژن هەستى بە نازار کرد له سەریدا.
We visited the organization and the newly appointed <u>head</u> welcomed us.	سەردارى ریکخراوەمکمان کرد و پەیریرسى تازە دەستتىشانکار او پېشوازى لیکردىن.
After the game, Hiwa found bruises on his <u>foot</u> .	دوای پاریبەکە ھیوا کیشەی لە پېيدا دۇززیمە.
The farm is located at the <u>foot</u> of a very high and rocky mountain.	کیلەگەکە دەکەوتە دامىتى شاخىكى زۆر بەرز و بەردىن.
A typical athlete can <u>run</u> 15 miles per hour.	وەرزشوانىتكى ئاسلىقى دەۋانتىت له كاتژمۇنىڭدا ۱۵ ميل رايقات.
After David’s death, his son started to <u>run</u> the family’s dairy business.	دوای مردىنى دەپە، كورمکەی دەستى کرد بە پەرنىھەرنى كاروبارى شېرىمەنلى.

Interestingly, Google Translate has effectively distinguished between the two senses in each of the three chosen polysemous words. The context plays a great role in determining the correct sense of polysemous words. The occurrence of the two words *pain* and *head* in the first sentence helps Google Translate to choose the first sense of the word *head* (i.e. the top of human body). Likewise, the occurrence of *organization* and *head* in the second sentence indicates that the second sense of the word *head* is applied, i.e. someone in charge of an organization. In the case of the word *foot*, it seems that it is normally translated as the part of the body at the lower extremity of the leg. However, when it is used as a phrase (*at the foot of*), the second meaning is applied, i.e. the bottom part of a hill or mountain.

Idioms and proverbs: these are fixed expressions whose applied meaning goes beyond the literal meaning of their constituent words (Rasul, 2018, pp. 121-122). To check Google Translate’s accuracy in rendering English idioms and proverbs into Sorani Kurdish, a set of 15 fairly common English idioms and proverbs are chosen and translated into Sorani Kurdish, as demonstrated in Table 6 below:

Table 7
Translation of idioms/proverbs from English into Kurdish by Google Translate

English Idiom/Proverb	Kurdish (Google Translation)	Kurdish (Human Translation)
a piece of cake	پارچەکنک	وەک تاوا خواردنەوە وايە
a wolf in sheep's clothing	گورگىك به جل و بەرگى مەروە	گورگە له پىستى مەردا
don't bite the hand that feeds you	ئەم دەستە مەگە كە خزراكت پىندەدات	کانىمەك ناوت لى خواردەوە بەردى تىقىزىمەدە
every cloud has a silver lining	ھەممۇو ھەورىنىك ناۋىپۇشنىكى زىونى ھەيمە	دوا ھەممۇو ناخشىشەك خۆشى نىت
if it ain't broke, don't fix it	نەمگەن مەكە با خراب نەبىت	چاکى مەكەنە
let the cat out of the bag	با پېشىلەكە له كىسەكە درېچىت	نەپەننەكەدى دركادن
lies have short wings	درۇڭان بالىان كورتە	پەقى درۇز كورتە
once in a blue moon	وەك نەستىرىدى سۈۋەيل وايە	جارىزىك لە مانىگىكى شىن
out of sight, out of mind	بەدمەر لە بېرچاۋ بەدمەر لە زىن	نەمەسى لەبىر چاوانە لەبىر دەلتەن
Rome was not built in a day	لەپىرىتك ناپىت بە كورىتك نەكرا	رۇمما لە رۈزىكىدا دروست
to cost an arm and a leg	بۇ تىچۈرى قولۇ قابېنگىك	نەركىز
to feel under the weather	بۇ ئۇمۇمىيە هەست بە زېير	ھەستكىرن بە كەمنىك
to kill two birds with one stone	بۇ كوشۇھەوا بىكەيت بىردىن	ناساغى
when pigs fly	كانتىك بەراز مەكان دەفرن	كاشۇھەوا بىكەيت
you reap what you sow	ئۇمۇدى دېچىنیت دەچىنەتەوە	كە شەممە لە مانگ بىرا جي بېچىنەت ئۇمۇدە

Strikingly, no single idiom/proverb is rendered by Google Translate appropriately; the constituent words in each idiom/proverb are translated literally. As Larson puts it, "the real danger comes in translating an idiom literally, since the result will usually be nonsense on the receptor language" (1998, p.126). The Kurdish translations of the English idioms/proverbs above are largely nonsensical. This is evident when the Google translation is compared with the human translation provided in column 3. Therefore, translating idioms/proverbs between English and Kurdish Sorani appears to be the most acute deficiency in Google Translate. Some of the chosen English idioms/proverbs have standard counterparts in Kurdish, such as *Rome was not built in a day* > لەپىرىتك ناپىت بە كورىتك. Others do not have one-to-one counterparts but can be rendered by paraphrase, such as *to feel under the weather* > ھەستكىرن بە كەمنىك ناساغى. Google Translate has failed not only in rendering idioms/proverbs that have counterparts of dissimilar form (e.g. *when pigs fly* > كە شەممە لە مانگ بىرا), but also in cases where the idiom/proverb has a counterpart of fairly similar form (e.g. *you reap what you sow* > جى بېچىنەت ئۇمۇدە). (جى بېچىنەت ئۇمۇدە دەچىنەتەوە).

4.2 Cultural Level

Translation is both an interlingual and intercultural

activity; therefore, both linguistic discrepancies and cultural incongruities can cause translation difficulties and constraints. In fact, "differences between cultures may cause more severe complications for the translator than do differences in language structure" (Nida, 1964/2004, p. 145). Cultural aspects of translation have already been explored by many translation scholars and researchers, such as: Bassnett (2013), Davies (2003), Dickins (2012), Franco Aixelá (1996), Ivir (1987), Katan (2009), Newmark (1988/2010) and so forth. Newmark (1988, pp. 96-102) proposes a comprehensive and practical model of categories of culture and distinguishes nine cultural categories (as listed below). This paper adopts Newmark's (*ibid.*) model of categories of culture in identifying and designating cultural terms.

- Ecological/geographical culture (names of places and peculiar ecological or geographical features), e.g.: *Scotland, Yorkshire Dale, etc.*
- Material culture (foods, clothes, artefacts, etc.), e.g.: *sausage, T-shirt, Sumerian cylinder seals, etc.*
- Social culture (social settings, social classes, etc.), e.g.: *café, teahouse, aristocrats, etc.*
- Social organization (political and administrative), e.g.: *10 Downing Street, State Department, etc.*
- Historical terms, e.g.: *WWI, Victorian age, etc.*
- Institutional terms (national and international), e.g.: *National Assembly for Wales, European Union, etc.*
- Religious terms, e.g.: *Christmas, Easter, mosque, etc.*
- Artistic terms, e.g.: *pope music, jazz, etc.*
- Gestures and habits, e.g.: *give a thumbs-up to signal OK; winking to indicate that something is secret, etc.*

To check the degree of accuracy in English-to-Kurdish (Sorani) translations produced by Google Translate, selected extracts are taken from Kate Fox's (2014) book *Watching the English: The Hidden Rules of English Behaviour*, which is laden with cultural terms. Based on Newmark's (1988) model of categories of culture, 43 cultural terms (excluding repetitions) identified in the selected excerpts. After translating the excerpts using Google Translate, the source and target texts are aligned and the cultural terms in both texts are highlighted and numbered (see the Appendix).

After a thorough analysis of the translation of the 43 cultural terms occurred in the chosen extracts, it was found out that 33 instances are translated accurately and ten cases inaccurately, nine of which are translated by borrowing and one instance by literal translation. Overall, 20 cultural terms translated by cultural borrowing can be considered as accurate translations both in terms of the translation procedure implemented and the pronunciation of the borrowed terms in the target language.

In such instances, the translation offered by Google Translate is what we expect from human translators. The instances are tabulated below:

Table 8

English cultural terms accurately transferred into Kurdish by Google Translate

No.	English Cultural Term	Kurdish Translation
1.	Britain	بەریتانیا
2.	British Empire	ئیمپراتوریتی بەریتانی
3.	London	لەندن
4.	Parliament	پەرلەمان
5.	Scotland	سکۆتلەند
6.	Wales	ویلز
7.	Ireland	تیرلەندنا
8.	BBC	بى بى سى
9.	Europe	ئۇرۇپا
10.	Holland	ھولندا
11.	France	فرانسا
12.	Eurostar	یۈرۈستار
13.	Dover	دۆفر
14.	Schengen visa	قىزىھى شىنگن
15.	Pound	پاؤند
16.	Pence	پېنس
17.	Toast	توست
18.	Christmas	كريسمس
19.	Hallowing	ھالۋوين
20.	Easter	ئىستەر

As can be seen, the list covers several cultural categories: geographical location (*London, France, etc.*), institutional term (*BBC*), material culture (*pound, toast*) and religious terms (*Christmas, Halloween and Easter*).

Whether Google Translate is programmed to translate these cultural terms or it automatically suggests the translation based on the pronunciation of the terms, the resultant translation is accurate. In his translation norms, Toury (2012, p. 79) refers to such translations as 'adequate', i.e. adherence to source culture norms. It is worth mentioning that, while *Halloween* has been accurately translated by cultural borrowing as *ھالۋوين*, the whole noun phrase *Halloween and Guy Fawkes' Night* has syntactically been processed incorrectly.

شەمی ھالۋوین و گای قۆكىن [Halloween Night and Guy Fawkes], which is obviously a mistranslation. Moreover, while the transference of the term *Guy Fawkes* can be accepted, a more common and natural translation would be شەمی يارى ئاڭرىن [Fireworks Night].

The remaining accurate translations (13 instances) are rendered by means of different translation procedures, such as:

- Calque, e.g.: *United Kingdom* > شاشىنىي يەكگەرتوو ; *Mother's Day* > چەئنى دايكان ; *New Year's Eve* > سەرى سال

- Recognized translation, e.g.: *Valentine's Day* > رۆزى خۇشەويىسى

- Literal translation, e.g.: *queen* > شاڙن

On the other hand, there are 7 other cultural terms that are inconveniently translated by borrowing, which can be deemed inaccurate translations, as follows:

Table 8

English cultural terms inaccurately transferred into Kurdish by Google Translate

ST Cultural Term	Kurdish Translation
House of Commons	ئەنچەمەنلى كۆمۈنەكان
Scandinavia	سکانдинافيا
Channel Tunnel	تونىلى كەنال
St Pancras	سانت پانکراس
EEA	EEA
bacon	بىكۆن
sausages	سۆسیس

The word *commons* in the term *House of Commons* is translated by borrowing, which sounds unnatural and unfamiliar to Kurdish readers. The term *House of Commons* could be better rendered by its standard, recognized translation as "the official or the generally accepted translation of any institutional term" (Newmark, 1988, p. 89). The proper noun *Scandinavia* is translated by borrowing but with an awkward and unfamiliar pronunciation. It seems Google Translate has mechanically translated the individual letters of the word into their closest counterparts in Kurdish. The word is normally translated by borrowing but with a familiar, modified pronunciation: ئەنچەنەنلىقى. The term is commonly translated by cultural explicitation as ولاتانى [Scandinavian countries]. The term *Channel Tunnel* is again rather awkwardly translated by borrowing and the resultant translation is unfamiliar to the target readers. The term is normally rendered by recognized translation in the Kurdish media as كەنالى [the English Channel].

The term *St Pancras* seems to have been mechanically translated by replacing individual letters of the term by their closest counterpart letters in Kurdish. The problem here is specifically with the abbreviation *St*, translated as سانت [sant], which does not make sense. The term should have simply been borrowed with the original pronunciation - سەرتپانکراس -. The acronym *EEA* seems not to have been recognized by Google Translate, it is then transferred into Kurdish intact, which is obviously unfamiliar to Kurdish readers. The acronym stands for *European Economic Area*, which can be best translated by a calque as ناواچەمى ئابورى ئۇرۇپا, given that "calque is a special kind of borrowing whereby a language borrows an expression form of another, but then translates literally each of its elements" (Vinay and Darbelnet, 1995, p. 32). The food term *beacon* is again incorrectly translated by cultural borrowing. It is normally referred to as گوشى بەراز in Kurdish, which is translation by descriptive equivalent. Finally, the food term *sausage* is commonly translated by borrowing as سۆسج. However, Google Translate has rendered it with inaccurate pronunciation as سۆسیس [/sɒsɪs/], which does not make sense in Kurdish.

As far as cultural aspects are concerned, other

inaccurate translations have also been observed. The most striking one is the translation of the food term *marmalade* as مارمیله [lizard]. The translation is an obvious mistake and the only common thing between the two words is the sound/pronunciation. It is questionable as to why and how the Google Translate algorithms are designed to choose a target language counterpart word with completely different meaning but similar pronunciation.

Finally, there is only one instance of inaccurate literal translation, which occurs in the translation of the cultural term *May Day*, rendered as بروزی نیاوار, which is not a familiar term in Kurdish. The term has a standard recognized translation in Kurdish: [پهکی نیاوار] [1st of May].

5. CONCLUSION AND RECOMMENDATIONS

The inclusion of Sorani Kurdish in the Google Translate is a crucial endeavor that serves thousands of Sorani Kurdish speakers. Taking into account both linguistic and cultural aspects, a considerable number of examples translated from English into Sorani Kurdish by Google Translate are critically and meticulously analyzed. The results unearthed that Google Translate is generally accurate at morphological and syntactic levels but improvements are needed to respond to minor deficiencies found in the translation of 'future perfect tense' and 'third conditional sentences'. Likewise, deficiencies were detected in processing passive tenses, specifically in the case of 'present progressive' and 'past progressive' tenses, which are unnecessarily translated by active voice. As for the semantic level, Google Translate has assumed effective in processing polysemous words but resulted in a total failure in rendering idioms and proverbs. Regarding the cultural aspects, in the majority of cases Google Translate offers accurate translations, whereas in the minority of cases it translates English cultural terms into Sorani Kurdish inconveniently.

All in all, the quality of Google translation from English into Sorani Kurdish is good as a first draft but far from being perfect. The translation can be completed only with the contribution and involvement of human translators. Competent translators can choose the right words and figure out the meaning of cultural terms to produce an accurate and natural-sounding translation and demonstrate their skillfulness and creativity. These features are, at the current time, missing in Sorani Kurdish translations produced by the Google Translate.

Given the deficiencies highlighted in this study and thanks to the editing services offered by Google Translate, it is recommended that English-Sorani Kurdish translators, lexicographers and linguists work in collaboration to constantly improve the quality and accuracy of the translation. With regard to translation

direction, this paper has mainly focused on translations carried from English into Sorani Kurdish. It is recommended that scholars and researchers will also focus on the opposite direction, i.e. Sorani Kurdish into English translations produced by Google Translate. This will provide a complete picture of the quality of Google Translate products between the two languages.

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