Chapter 5

Chapter-5
A translation task has two major phases. First one is to find the meaning of a text in the source language and the second one is to find the functional equivalents in the target language. For the first phase, we have to go through a number of issues like polysemy, idioms, phrases etc. The second phase contains issues like culture, availability of target language equivalent, proper nouns, coining of the new words, and also inflectional morphology and syntax etc.

Let’s discuss these issues:

Following is a flowchart showing the above mentioned two phase of translation.
A flow chart of translation mechanism

Phase-I

1. Finding phrasal unit/semantic unit.
2. And solving ambiguity issues, if any, in source language.
3. Finding the correct meaning in the source language.

Phase-II

1. Solving translation issues like cultural, technical terms, idiomatic, inflectional morphology, etc.
2. Finding the functional equivalent in the source language.
5.1. **Source language issues** (identifying the semantic units):

A lexical item can have more than one concept in it. A concept can be in a single word form or a phrasal form. Because of the dynamic nature of the syntactic or semantic units, it is very difficult to find them especially for machines.

5.1.1. **Word meaning:**

A meaning of a word or phrase depends on the context. On surface level, context is a combination of the word strings. In a direct interaction one can get help from various tools like intonation, context, body language etc. but when it comes to an indirect mode of interaction this gets worse. Analysing satirical or ironical text or finding meaning from the idiomatic expressions is the most problematic issue in the world of machine translation.

**Polysemy and homonymy:** a word can have more than one meaning according to the type it belongs. For example,

**a. Count:**

i. Would you like [another chocolate]? (count)

ii. Would you like [some more chocolate]? (non-count)

‘Chocolate’ in ‘ii’ denotes a food substance, where as in ‘i’ it denotes an individual unit consisting of that substance. It is a case of ‘polysemy’. Homonymy is the phenomenon where distinct lexical items happen to be pronounced and spelled alike. A standard example is ‘bank’, where we distinguish two homonymous lexical items, one denoting a financial institution, the other the sloping margin of a river. These happen to derive ultimately from the same etymological source, but they have come into English via different routes and, more importantly, they are not perceived as being semantically related. But in the case of ‘i’ and ‘ii’ there is a clear relation between the two meanings, and we therefore take them to be senses of a single lexical item.

**b. Proper nouns:**
‘America’ is a proper noun, but ‘The United States of America’ is not. And not even ‘The United State’ or ‘United’ or ‘states’ are proper noun. Proper nouns function as heads of proper names, but not all proper names have proper nouns as their head: the head of such proper names as ‘The United States of America’, ‘the Leeward Islands’, ‘the University of Manchester’ are common nouns. Proper names with common nouns as head often contain a smaller proper name as or within a dependent, but they do not need to.

Proper nouns are nouns which are specialized to the function of heading proper names. There may be homonymy between a proper noun and a common noun, often resulting from historical reanalysis in one or other direction. For example, in ‘the Earl of Sandwich’ ‘Sandwich’ is a proper noun, while that in ‘a ham sandwich’ it is a common noun.

c. Adjectives Vs Adverbs:
There are a number of adverbs that are identical in form with adjectives. The overlap is greater in non-standard speech.

<table>
<thead>
<tr>
<th>Adjective</th>
<th>Adverb</th>
</tr>
</thead>
<tbody>
<tr>
<td>i.a. She’s a hard worker.</td>
<td>b. She works hard.</td>
</tr>
<tr>
<td>ii.a. It’s a real gem.</td>
<td>b. That’s real nice of you.</td>
</tr>
<tr>
<td>iii.a. They make regular payments.</td>
<td>b. They pay the rent regular.</td>
</tr>
</tbody>
</table>

‘Hard’ is one that is stylistically neutral; there is an adverb ‘hardly’, but its meaning is quite different, and there is no alternation between ‘hard’ and ‘hardly’ in ‘i.b’. The use of ‘real’ in ‘iib’ is very informal: other styles would have ‘really’ and ‘iib’ is clearly non-standard, the standard variety requiring the –ly form ‘regularly’.

d. Adjectives vs nouns:

i. It was a very professional performance. (Adj)
ii. She did better than all the professionals. (N)
Attributive ‘professional’ in ‘i’ is modified by ‘very’, indicating that it is an adjective, while the plural form in ‘ii’ must be a noun: the singular form ‘professional’ is thus a noun homonymous with the adjective.

e. some more examples:

‘no’ and ‘know’, ‘bow’ (front part of the ship) and ‘bow’ (a weapon) are homonyms.

f. prepositions:

These polysemy in the prepositions. Let’s see some of the prepositions and concepts where they found.

Of: possession, amount, containing, position, typical, days, time, during, judgment, relating to, made of, separate from, loss, that is/are, done to, through.

In: inside, part, involved, wearing, expressed, during, no more than, before the end, experiencing, result, arrangement, comparing amounts, characteristic, cause, from outside, sent, coast, completion, sport, fashionable, age/temperature.

On: above, connected, writing, recording/performance, performing, pain, to, relating, money, necessary, next to, time, after, travel, food/fuel/drug, process, involvement, member, again, comparison, possession, payment, faulty, tool, not stopping, moving forward, position, operating, happening, points.

g. another example:

In any language, an individual word may fall under one or more syntactic categories and may have one or more grammatical functions. For example, according to the WordNet 2.1, ‘bank’ has 10 noun senses and 8 verb senses.

bank (NOUN):
1. Depository financial institution (a financial institution that accepts deposits and channels the money into lending activities. Ex. he cashed a check at the bank)
2. Sloping land (especially the slope beside a body of water. Ex. they pulled the canoe up on the bank)
3. A supply or stock held in reserve for future use (especially in emergencies)
4. Bank building (building in which the business of banking transacted. Ex. the bank is on the right side of the school)
5. An arrangement of similar objects in a row or in tiers. Ex. he operated a bank of switches)
6. Coin bank, money box, savings bank (a container, usually with a slot in the top, for keeping money at home (ex. the coin bank was empty)
7. A long ridge or pile (ex. a huge bank of earth)
8. The funds held by a gambling house or the dealer in some gambling games. (ex. he tried to break the bank at Monte Carlo)
9. Cant, chamber (a slope in the turn of a road or track. ex. the outside is higher than the inside in order to reduce the effects of centrifugal force)
10. A flight maneuver; aircraft tips laterally about its longitudinal axis, especially in turning. (ex. the plane went into a steep bank)

bank (VERB):

1. Tip laterally. (ex. the pilot had to bank the aircraft)
2. Enclose with a bank. (ex. bank roads)
3. Do business with a bank or keep an account at a bank. (ex. Where do you bank in this town?)
4. Act as the banker in a game or in gambling)
5. Be in the banking business
6. Deposit. (put into a bank account; ex. she deposits her paycheck every month)
7. Cover with ashes so to control the rate of burning (ex. bank a fire)
8. Trust, swear, rely (have confidence or faith in. ex. We can trust in God, bank on your good education)
5.1.2. Phrasal words:

So far we have seen issues related to the single word entries. Now we discuss some issues related to the group words, i.e. phrasal words.

Phrasal words are most common in any natural language. Some of them are idioms. Some even say that idioms and phrases represent the beauty of a language. They have their own identity. But, it is very difficult to analyze these units by normal methods. There is a need to take them for separate study. While analyzing a sentence first of all it is better to extract the phrases (phrasal nouns, phrasal verbs, phrasal prepositions etc.) and then analyze the sentence according to that phrase.

Solving all the above issues correct meaning of a word or phrase should be identified. Most of the senses, listed above, have different/specific functional equivalents in the target languages. Thus those issues should be studied well, to get proper translation.

5.2. Target language issues (finding equivalents): (Here, of has been taken as the example which is the main concern of this thesis)

After I identifying meaning of source language, finding equivalents for them is another challenging issue. Because, some entries can have word to word equivalents in target language and some can not.

5.2.1. Explicit functional equivalent:

Ex.1. Did something [come of all those job applications]?

The Telugu translation for the above English sentence would be:

అన్ని ఆఉద్యోగం ప్రయత్నిలను చెందిందిన వచ్చింది?

(anni a udyoga prayatnāla nuñci ēmainā vaccindā? )
All those job (oblique) applications (obl) of something did come?

In the above example, though there is no physical movement taking place, the feature of movement is attributed. The verb ‘come’ is a dynamic verb and it shows a motion from a place or to a place. The functional equivalent for of here is ‘నున్ని’.

(To identify these kinds of phrases, following kind of rules would be helpful. ‘come+of+Nx’ is a phrase where the word of takes the equivalent ‘నున్ని’ - In next chapter we will discuss this method)

5.2.2. No lexical equivalent required:

Ex.2.

I reserved them by phone yesterday in the name of Kittu.

‘in the name of sth’ is an idiomatic expression. If we translate the full phrase the translation would be ‘kiṭṭu pēru pai/tō’ (కిట్ట పేరు పై/టో).

of phrase is complementing the head preposition phrase ‘in the name’. Here the phrase ‘the name of Kittu’ is in the form of inflected genitive ‘Kittu’s name’ that can be translated in Telugu as ‘kiṭṭu pēru’ (కిట్ట పేరు) (of in genitive does not have explicit lexical equivalent in Telugu – one of the general observation is that subject determiner genitive doesn’t have explicit lexical equivalent in Telugu, only oblique from fulfils the purpose. Here in this example there is no oblique form for the noun ‘kittu’, because there is no oblique form for nouns, in Telugu).

Ex.3.

Much blood has been spilled in the name of religion.

This example is similar to the previous example. It can be inflection genitive form ‘religion’s name’, and according to our observation genitives does not have explicit equivalent in Telugu. The translation of the phrase would be ‘mataṁ pērupai/tō’ (మతింపేరు పై/టో), without explicit lexical equivalent for of.
5.2.3. **Inflections:**

Ex. He sent me some flowers *by way of* an apology.

వారికి క్షమాపనాన్ని గుర్తుగా ప్ింపాడు

(atadu kṣamāpaṇalakugurtugā pûvulampiṁcāḍu)

Here the ‘la’ is plural oblique and ‘ku’ dative marker. Most of the plural nouns in Telugu take ‘la’ oblique form.

5.2.4. **Some translation issues of the structure N+of+N:**

(These are applicable for phrasal nouns and plain forms of genitives)

(These issues are needed at the time of dictionary compilation)

While translating the nouns from source language (here English) into a target language (here Telugu) following issues have to be considered.

5.2.4.a. **Equivalents available in target language:** for some nouns target language may have local equivalent.

Ex. presence of mind – samayaspūrī (సమయసపూరి)

5.2.4.b. **Transliteration:**

5.2.4.b.a. culture specific:

Source language sense may be new for the target language.

Ex. the fall (of man) – di phāl āph myān (ద్ి ఫాల్ ఆఫ్ మాోన్)

communion of saints – kamyūniyan āph seyinţ (కమ్యునియన్ ఆఫ్ సేయింట్టు)

These nouns relate to the Christian religion. According to the Bible, the Fall (of man) was the occasion when the first man and woman disobeyed the rules of God and were sent away from the garden of Eden. And, ‘communion of saints’ means all the
people who are part of the Christian church. Instead of trying to find the equivalent in the target language transliteration is the better option to retain the original sense.

5.2.4.b.b. technical words:

Ex. coat of arms – kōṭā phārāms (కోట్ ఆఫ్ ఆర్స్)
Jaws of Life – jāsā phārā laiph (జాస్ ఆఫ్ లైఫ్)

5.2.4.b.c. names of the institutions:

Bank of England – byānkhā phārām inglāndu (బ్యాంక్ ఆఫ్ ఇంగ్లాండు)

Coat of arms relates to a special shield or shield-shaped pattern which is the sign of a family, university or city. Jaws of Life is a US trademark. It’s a piece of equipment which can cut through metal and which is used to get people out from their vehicles after an accident. Translation of the trademarks is not recommended. ‘Bank of England’ is the central bank of the United Kingdom. If we translate like ‘இంగ்லாந்து பாக்’ in Telugu it gives a general sense i.e. a bank related to England not as the central bank of England.

5.2.4.c. Word to word substitution (without syntactic change – the place of the head remains the same even after translation):

It is different because in the structure N1+of+N2 when this structure is translated into Telugu it becomes N2+of+N1. Ex. a bunch of papers – pēparā kattā (పేపరా కత్త) = of papers a bunch

But in some cases this rule will not work and the structure N1+of+N2 remains the same even in the Telugu.

Ex. a kilo of mangos – kilō māmīdi pallu (కిలో మామిడి పాల్లు) = a kilo of mangos
Hundreds of people – vandalādi prajalu (వండలాది ప్రజలు) = hundreds of people
5.2.4.d. Different sense: (this point is needed in a bilingual dictionary)

II.4.d.a. Country level: Some nouns are used differently in different countries.

Ex. High Court of Australia

In Australia ‘High Court of Australia’ is the law court where decisions that are made in the Supreme Court of each state can be considered again. The sense is opposite in India. The Supreme Court considers the decisions made in High Courts of the states.

5.3. Some more issues related to the equivalents.

5.3.1. Oblique forms:

1. a. All plural nouns exhibit oblique stem by the marker ‘a’ (lu => la) in Telugu.

Ex. బ్లికలు (bālikalu) – girls బ్లికా (bālikā) – of girls

మాత్రములు (ballalu) – tables మాత్రము (ballalā) – of tables

But for singular word which ends with a shape’ లు (lu), will take oblique form ‘ఇ’.

Ex. మనుమారాలు (manumarālu) - granddaughter (singular noun)

మనుమారాలి (manuma rāli) - of granddaughter (singular oblique)

1. b. Singular nouns take oblique stem in Telugu:

Ex. man of god (dēvuḍi maniṣi) - దేవుడి మనిషి

rate of exchange (māraka/mārakapu viluva) - మారకం/మారకాపు విలువ

1.c. Not all singular nouns take oblique stems.

Ex. mitruḍu (friend) – mitruḍi (of friend), but

చెట్టి (ceṭṭi) (tree) – చెట్టి (of tree).

Some more examples
We can classify nouns in Telugu in genitive case, or possessive case as

1. Geni nouns: oblique forms which can be used in genitives case,

2. Null-geni nouns: which has no oblique form but it can used in genitive case, and

3. Context base geni nouns: Ex. pannu - tax and tooth, illustrated in 2.e. in the following section).

5.3.2. Influence of the neighboring words on markers:
A noun, which precedes or follows the word of, or/and a verb can influence the oblique stem of the word. Consider the following examples.

5.3.2.a. influence of the noun which is preceding of:
Ex.

pages of the book - పుస్తక పుటలు (pustaka puṭalu)

front side of the book - పుస్తక(0) ముద్వాపుత (pustakaṁ ṃudvāputa)

third page of the book. పుస్తకం ముదవపుత (pustakam ṃudavapuṭa)

Modern usage of the language is the main reason for the above problem/situation.
There was no problem in olden Telugu because the suffix ‘పు’ (pu) is most suitable for all the above situations.

Here the preceding nouns ‘pages, front, third’ influencing the suffix marker.

5.3.2.b. influence of the noun which is following of:
Ex. reek of something (phrasal verb)

His promotion reeks of favoritism. – atani padōṇnati pakṣapātapu kampukoṭuttunnadi.
...reeks of tiger. – puli vāsana/kampukoḍutunnadi.
...reeks of America. – amerikā vāsana/kampukoḍutunnadi.
...reeks of American policy. – amerikā vidhāna(ṁ)pu vāsana/kampukoḍutunnati.
...reeks of Americans. – amerikanla vāsana/kampukoḍutunnadi.

Here the following nouns ‘favoritism, tiger, America, American policy’ influencing the suffix marker, not the verb.

5.3.2.c. Verb influence: The following example has the combination of relieve+of which always takes same equivalent for the word of, irrespective of it complement

Ex: relieve somebody of something (pv) : (from sense)
i. object sense:-
(polite): May I relieve you of that heavy bag?
అందులో అందించించండి నుండి మీకు విముక్తి కలిగతించవచనచ?
ā baruvu sañci nuñdi mīku nēnu vimukti kaligīcavaccā?

(humorous): The pickpocket delicately relieved him of his wallet.
జేబుద్ ింంగ జాగరతుగా అతన్న లాోల ట్ నుండి విముక్తి కలిగతించండి?
jēbudoṅga jāgrattagā atani vālet nuñdi vimukti kaligīcāḍu.

ii. job sense:- The committee’s chairperson is to be relieved of her duties.
కమిట్ీ చెయ్యపరిన బ్దోతల నుండి ఆమ్తప్ూూకొలివుింద్ి?
kamiṭi cairparsan bādhyaṭalana nuñdi āme tappukōvalasi ʊñdi.

Here the verb ‘relieve’ always demands for the suffix ‘nuñdi’ irrespective of the noun it relates.

5.3.3. Word selection among synonyms:
The English word ‘boy’ has equivalents ‘bāluḍu, abbāyi or kurraḍu’. Here the word ‘bāluḍu’ and ‘kurraḍu’ take oblique stem where as ‘abbāyi’ doesn’t explicitly display the same.
Ex. Shoes of the boy:

బ్లుడి మేజోళ్ళ bāluḍi mējōḷu

అబ్యి మేజోళ్ళ abbāyi mējōḷu

కురరలాడి mējōḷu

Ex. The state of being a boy (boyhood):

బ్లుడి గా ఉండే bāluḍi gā uṁḍe

అబ్యి gā uṁḍe

కురరలాడి gā uṁḍe...

5.3.4. Homonyms and oblique forms:

ప్నుణ (pannu) can be a ‘tooth’ or ‘tax’ in Telugu.

1. tooth:

color of the tooth

పాంతి రాంగు (paṇṭi raṅgu)

The dentist cleaning the tooth

పాంతి వాయుడు పాంతిని/పాంతి పాదం పాదం ల శుబరించేమూయా నంది (paṇṭi vaidyudu paṇṭini/pannu 

షుబరించేమూయా నంది)

Here we can find an influence of modern usage: accusative marker can be deleted –

paṇṭi/pannu

2. tax:

burden of the tax

పాంతి పాదం/పాంతి పాదం (pannu bhāraṁ/mōta)
He is paying the tax

అతను ప్నుి కడుతుననిడు (atanu pannu kaḍutunnāḍu)

Here we can observe that the sense ‘tax’ is taking no oblique stem where as ‘tooth’ is taking the oblique stem. So we can say that oblique stem of geninouns depends on the meaning, not on the mere outer shape of the word.

As I said before, some nouns take explicit oblique form, some don’t and for some others it is optional. It depends on the neighboring words, and

5.3.5. **Proper nouns:** proper nouns in a phrasal noun do not take any equivalent for *of* in Telugu.

Ex. Poems of Ravindranath Tagore

rävindranāth ṭḥāgūr kavitalu

United States of America

amerikā saṃyukta rāṣṭrālu.

But, proper nouns ending with ‘du’ form don’t follow above rule.

Ex. Sons of Ram

rāmuḍī/ rāmuni putrulu.

Songs of Krishna

kṛṣṇudī/ kṛṣṇuni gēyālu.

From the above we can see that it is the target language which decides the oblique form not the source language.

5.3.6. **Some rules for oblique formation:**

Note: following is the tentative information, because it has not studied with all perspectives.
Chapter 5

Translation Issues

a. ‘i’ ending oblique forms

- ‘యో’ (yi) takes ‘ట+ఇ’ (t-i) oblique stem with human nouns and with non-human
  it may be optional.

  hand - చేయ (cēyi)
  power of the hand
  చేతిబలి/శకి (cēti balam/šakti)

  pit - గొయో (goyyi)
  depth of the pit
  గొయో(ట) బాలి (goyyi(ti) lōtu)

  stove - పొయో (poyyi)
  flame of the stove
  పొయోమింట (poyyi maṭa)

- ‘రు’ (ru) takes ‘ట+ఇ’ (¶a+i), ‘ర+ఇ’ (ra+i) oblique stem:

  Ex. mouth – నోరు (nōru)
  part of the mouth - భగిం (nōti bhāgaṃ)
  village - ఊరు (ūru)
  outskirts of the village - ఊరిపొలిమేర (ūri polimēra)

  But it not true with the some words like

  Ex. battle - పోరు (pōru)
  result of the battle
  పోరుఫలితిం (pōru phalitaṃ)

b. Nouns which are ending with ‘ంిం’ will take oblique form.
Ex. book - పుస్తకం (pustakaṁ)

pages of the book - పుస్తక పుష్టి (pustaka puṭalu)

government - ప్రభుత్వ (prabhutvaṁ)

Statement of the government
ప్రబ్ధుత్వ ప్రకటన (prabhutva prakāṭana).

nation - దేశ (dēśaṁ)

resources of the nation - దేశ వనరులు (dēśa vanarulu)

gold - బిగార (baṅgāraṁ)

plates of gold
పాణి పాలు (baṅgāru/baṅgārapu paḷālu)

Above mentioned points should be considered while writing the computer rules or adopting a machine translation method. After briefly discussing some translation issues related to of, we turn to implementation of these points in a Machine Translation System, in the next chapter.