Word Sense Disambiguation: Tumun rules in Aṣṭādhyāyī

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Pāṇini's grammar

From Information theoretic point of view, Pāṇini has given utmost importance to the information coding in a language.

- Where does a language code information
- How much information it codes
- How does a language code the information

are the questions he addressed to.

Pāṇini's grammar

Here is another example, now of the Sense Disambiguation. In Sanskrit, there is one suffix 'tumun', which is used in more than one senses.

- अहम् पुस्तकम् पठितुम् ग्रन्थालये गच्छामि
  I go to the library to read a book.
- सः भोक्तुम् इच्छति
  He wants to eat.
- सः भोक्तुम् शक्नोति
  He can eat.
- सः पठितुम् समर्थः अस्ति
  He is able to read.
- इदम् भोक्तुम् कालः
  This is the time to eat.

Pāṇini's grammar

We notice that the meaning of 'tumun' in each of these is different.

- Purpose
  अहम् पुस्तकम् पठितुम् ग्रन्थालये गच्छामि
  I go to the library to read a book.
- Capability (verb) सः भोक्तुम् शक्नोति
  He can eat.
- X specific to some activity इदम् भोक्तुम् कालः
  This is the time to eat.

Pāṇini's grammar

Pāṇini provided 5 rules to account for these different usages.

- तुमुन्-ण्वुलौ क्रियायाम् क्रियार्थायाम्
  'Tumun' and 'Nvul' are the affixes attached to the verb denoting an action which is to happen in the FUTURE and which is the PURPOSE of another action.
  अहम् पुस्तकम् पठितुम् ग्रन्थालये गच्छामि
  I go to the library to read a book.
- समानकर्तुकेषु तुमुन् (इच्छार्थेषु)
  'tumun' is affixed to the verb where the other verb denotes the action DESIRE and where the kartā (AGENT) IS SAME FOR BOTH ACTIONS
  सः भोक्तुम् इच्छति
  He wants to eat.

Pāṇini's grammar

- शक्-धृष्-ग्या-ग्ला-घट-रभ-लभ-क्रम-सह-अर्ह-अस्ति-अर्थेषु-तुमुन्
  'tumun' is affixed to the verb in a sentence where the other verb is from the list of śak etc. (This list is specific to Sanskrit).
  सः भोक्तुम् शक्नोति
  He can eat.
- पर्याप्ति-वचनेषु अलमर्थेषु
  'tumun' is affixed to the verb in a sentence where the related word is paryApta' etc., that occur in the sense of CAPABILITY. सः पठितुम् समर्थः अस्ति
  He is able to read.

- **कालसमयवेलासु तुमुन्**
  'tumun' is affixed to the verb in a sentence where the related words such as kAla etc., referring to TIME occur. Here the time to perform an action is indicated.
  इदम् भोक्तुम् कालः
  This is the time to eat.

Universal Applicability

The rules which Panini provided are universal, in the sense that these rules are applicable to other languages as well.

For example, English uses '(To) infinitive' in all these cases.

Universal Applicability

- To-infinitive denoting purpose
  I am going to the library to read a book.
- To-infinitive as a modifier of main verb meaning ‘desire’
  I want to eat.
  The agent for both the actions is also the same.
- To-less infinitive with ‘can’
  I can do this work.
- To infinitive with the nouns: ability/able/enough/... He has the ability to lift this weight.
  He is able to lift this weight.
- To-infinitive modifying words indicating ‘time’
  It is time to go home.

There are many more usages in English where 'To infinitive' is used.