CONTENT

PRELUDE

INTRODUCTION

CHAPTER 1: MAN AND MACHINE

1. INTRODUCTION
2. HUMAN BEINGS AND COMPUTERS
   2.1 HUMAN BEING’S STRENGTHS
   2.2 HUMAN BEING’S WEAKNESSES
3. NATURAL LANGUAGES AND ARTIFICIAL LANGUAGES
4. ARTIFICIAL INTELLIGENCE
   4.1 DEFINITIONS OF ARTIFICIAL INTELLIGENCE
   4.2 GENESIS OF ARTIFICIAL INTELLIGENCE
   4.3 SUBFIELDS OF ARTIFICIAL INTELLIGENCE
   4.4 ARTIFICIAL INTELLIGENCE AND COGNITIVE PROCESS
      4.4.1 Cognitive Computation: Human and Machine
      4.4.2 The Computational Model of Cognition
         4.4.2.1 The Function of Computational Models of Human Cognition
         4.4.2.2 Programming Languages for Computation
         4.4.2.3 Thinking and Knowledge
            4.4.2.3.1 Knowledge Discovery in Humans & Computers
            4.4.2.3.2 Knowledge Representation
            4.4.2.3.3 Sharing of Knowledge
   4.5 PROGRESS AND FUTURE OF ARTIFICIAL INTELLIGENCE
CONCLUDING COMMENTS

CHAPTER 2 TRANSLATION: THE PHENOMENON

1. INTRODUCTION
2. THE PROCESS OF TRANSLATION IN GENERAL
   2.1 DEFINITION OF TRANSLATION
   2.2 THE PROCESS OF TRANSLATION
      2.2.1 The Background of the Process of Translation
         2.2.1.1 Parameters affecting Translation
      2.2.2 The Architecture of the Process of Translation
         2.2.2.1 The Motivation for Translation
            2.2.2.1.1 Effect of Translated Text
         2.2.2.2 Selection of the Source Text
         2.2.2.3 ‘Reading’ and ‘Understanding’ of the Selected Source Text
         2.2.2.4 Analysis of Multiple Meanings
         2.2.2.5 The Selection of Words
      2.2.3 The Actual Study of A Translated Artifact
   2.3 EVALUATION OF TRANSLATION
   2.4 TYPES OF TRANSLATION
3. UNIVERSALS OF TRANSLATION
   3.1 CLASSIFICATION OF UNIVERSALS OF TRANSLATION
      3.1.1 Explicitation
      3.1.2 Simplification
      3.1.3 Normalization
4. MACHINE TRANSLATION
   4.1 INTRODUCTION TO MACHINE TRANSLATION
      4.1.1 Historical Background of Machine Translation
   4.2 THE PROCESS OF MACHINE TRANSLATION
      4.2.1 The Background of the Process of Machine Translation
      4.2.2 The Architecture of the Process of Machine Translation
      4.2.3 Approaches toward Machine Translation
         4.2.3.1 Rule-based Machine Translation
            4.2.3.1.1 Direct Machine Translation
            4.2.3.1.2 Transfer-based Machine Translation
            4.2.3.1.3 Interlingua (pivot language) Machine Translation
            4.2.3.1.4 Dictionary-based Machine Translation
            4.2.3.1.5 Shallow-transfer Machine Translation
      4.2.3.2 Statistics-based Machine Translation
      4.2.3.3 Example-based Machine Translation
      4.2.4 Knowledge Base for Machine Translation
      4.2.5 Tools for Machine Translation
         4.2.5.1 Concordances
         4.2.5.2 On-line Bilingual Texts
         4.2.5.3 Translation Memories
   4.3 EVALUATION OF MACHINE TRANSLATION
   4.4 ANALYSIS OF ERRORS IN MACHINE TRANSLATION
   4.5 THE SALIENT ISSUE(S) IN MACHINE TRANSLATION

CONCLUDING COMMENTS

CHAPTER 3: THE NATURE OF AMBIGUITY

1. INTRODUCTION
2. WHAT IS AMBIGUITY?
   2.1 AMBIGUITY AND THE REAL WORLD
      2.1.1 Field Work
         2.1.1.1 Methodology for Field Work
         2.1.1.2 Results of Field Work
   2.2 AMBIGUITY AND LITERARY CRITICISM
   2.3 GENESIS OF AMBIGUITY
   2.4 AMBIGUITY CONTRASTED
      2.4.1 Ambiguity
         2.4.1.1 Amphiboly or Amphibology
      2.4.2 Vagueness
      2.4.3 Logical Fallacy
         2.4.3.1 Equivocation
      2.4.4 Other Comparable Terms
   2.5 AMBIGUITY AND LINGUISTICS
2.6 TYPES OF AMBIGUITY

2.7 LEVELS OF AMBIGUITY
   2.7.1 Categorical Ambiguity
   2.7.2 Phonological Ambiguity
   2.7.3 Word sense Ambiguity
   2.7.4 Structural Ambiguity
   2.7.5 Scope Ambiguity
   2.7.6 Pragmatic Ambiguity

3. SANSKRIT TRADITION
   3.1 THE PLACE OF AMBIGUITY IN SANSKRIT TRADITION
      3.1.1 Determination of Meaning in Sanskrit Grammatical Tradition
      3.1.1.1 The Process of Determining Meaning
   3.2 THE PRINCIPLES OF RESOLVING AMBIGUITY

4. AMBIGUITY AND MEANING
   4.1 ‘MEANING’ IN LINGUISTICS
      4.1.1 Idea Theory
      4.1.2 The Theory of Prototypes
      4.1.3 The Theory of Truth and Meaning
         4.1.3.1 Ontology
      4.1.4 The Theory of Universals
      4.1.5 Substance Theory
      4.1.6 Heidegger’s Argument
      4.1.7 Sinn and Bedeutung by Frege
         4.1.7.1 An Expression’s Relation to Sense or Reference
   4.2 SEMANTICS
   4.3 HERMENEUTICS

CONCLUDING COMMENTS

CHAPTER 4: WORD SENSE DISAMBIGUATION: THEORETICAL PARADIGM

1 WHAT IS A WORD?
   1.1 ORTHOGRAPHIC WORDS
   1.2 PHONOLOGICAL WORDS
   1.3 LEXICAL ITEMS (LEXICAL WORDS)
      1.3.1 Citation Forms
   1.4 GRAMMATICAL WORD-FORMS
      1.4.1 Inflection and Derivation
   1.5 TYPES OF WORDS
      1.5.1 Multi-part and Discontinuous Words
      1.5.2 Content Words and Grammatical Words
      1.5.3 Clitics
      1.5.4 Short Forms
         1.5.4.1 Abbreviations
         1.5.4.2 Logograms
         1.5.4.3 Contractions
         1.5.4.4 Acronyms and Initialisms
         1.5.4.5 Clipped Forms
   2 WHAT IS A CONCEPT?
3 THE THEORETICAL BACKGROUND OF WORD SENSE DISAMBIGUATION (WSD)

3.1 DEFINITION OF WORD SENSE DISAMBIGUATION

3.2 SURVEYS OF WORD SENSE DISAMBIGUATION METHODS

3.2.1 Early Word Sense Disambiguation Work in Machine Translation

3.2.2 AI-based Methods

3.2.2.1 Symbolic Methods

3.2.2.2 Frame-based Methods

3.2.2.3 Graph-based Methods

3.2.2.4 Preference Semantics-based Methods

3.2.2.5 Word Expert Parser

3.2.2.6 Information-based Methods

3.2.2.7 Connectionist Methods

3.2.3 Knowledge-based Methods

3.2.3.1 Machine-readable Dictionaries

3.2.3.1.1 The Box Codes and the Subject Codes

3.2.3.2 Thesauri

3.2.3.3 Computational Lexicons

3.2.3.4 Generative Lexicons

3.2.4 Corpus-based Methods

3.2.4.1 Automatic Sense-tagging

3.2.4.2 Corpora for Context

3.2.4.2.1 Micro-context

3.2.4.2.2 Distance

3.2.4.2.3 Collocation

3.2.4.2.4 Syntactic Relations

3.2.4.2.5 Topical context

3.2.4.2.6 Domain

3.2.4.2.7 Sense Division

3.3 EVALUATION: WORD SENSE DISAMBIGUATION TASK

3.4 RESOURCES FOR WORD SENSE DISAMBIGUATION

3.4.1 Corpus / Corpora

3.4.2 Ontology

3.4.3 Word-Net

3.4.4 Frame-Net

3.4.4.1 Constructing Frames

3.4.4.1.1 Frame Semantics

3.4.4.2 Application of Frame-Net

3.4.5 Concept-Net

3.4.5.1 What is Concept-Net?

3.4.5.2 Applications of Concept-Net

CONCLUDING COMMENT

CHAPTER 5: WORD SENSE DISAMBIGUATION: CATEGORIWISE MARATHI WORDS

1. INTRODUCTION

2. DISAMBIGUATION TECHNIQUES

2.1 PUNCTUATION MARKS

2.2 BORDER-LINE WORDS AND SPECIAL WORDS
2.2.1 Multipart Words
2.2.2 Discontinuous Words
2.2.3 Clitics
2.2.4 Short Forms
2.2.5 Onomatopoeic Words

2.3 NOUNS
  2.3.1 Common Nouns
  2.3.2 Proper Nouns
  2.3.3 Abstract Nouns
  2.3.4 Nouns Derived from Infinitive Verbs
  2.3.5 Onomatopoeic Nouns
  2.3.6 Nouns Denoting Persons
  2.3.7 Nouns Denoting Animals
  2.3.8 Nouns Denoting Plant
  2.3.9 Nouns Denoting Things
  2.3.10 Nouns Denoting Quality
  2.3.11 Nouns Denoting Process
  2.3.12 Nouns Denoting Action
  2.3.13 Nouns Denoting Relation

2.4 ADJECTIVES
  2.4.1 Adjectives Expressing Quality
  2.4.2 Adjectives Expressing Quantity
  2.4.3 Adjectives Derived from Pronouns (Pronominal Adjectives)
  2.4.4 Adjectives Derived from Nouns
  2.4.5 Adjectives Derived from Verbal Nouns
  2.4.6 Adjectives Derived from Postpositions
  2.4.7 Possessive Adjectives
  2.4.8 Comparative Adjectives
  2.4.9 Adjectives Expressing Characteristics and Features of Persons
  2.4.10 Adjectives Expressing characteristics and Features of Animals
  2.4.11 Adjectives Expressing Characteristics and Features of Things
  2.4.12 Adjectives Expressing Characteristics and Features of Situations
  2.4.13 Onomatopoeic Adjectives

2.5 VERBS
  2.5.1 Verbs of Action
  2.5.2 Verbs of Process
  2.5.3 Verbs of State
  2.5.4 Transitive Verbs
  2.5.5 Di-transitive Verbs
  2.5.6 Intransitive Verbs
  2.5.7 Intransitive Verb Forms That Need Complementary Words
  2.5.8 Intransitive Verb Forms That Don’t Need Complementary Words
  2.5.9 Causative Verbs Related to Transitive Primary Verbs
  2.5.10 Causative Verb Forms Related to Intransitive Primary Verbs
      2.5.10.1 Causative Verbs Related to Intransitive Primary Verbs That Need Object
      2.5.10.2 Causative Verbs Related to Intransitive Primary Verbs That Do Not Need Object
2.5.13 Verbs Expressing Ability
2.5.14 Compound Verbs (All Constituents Being Verb Forms)
2.5.15 Compound Verbs (At Least One Constituent Being Other than Verb Form)
2.5.16 Composite Verbs
2.5.17 Finite & Infinite Verb Forms

2.6 Adverbs
2.6.1 Adverbs Defining State
2.6.2 Adverbs Defining Action
2.6.3 Adverbs Defining Process
2.6.4 Adverbs Expressing Situational Place (Adverbs of Place)
2.6.5 Adverbs Expressing Time (Adverbs of Time)
2.6.6 Adverbs of Manner
2.6.7 Adverbs of Quantity
2.6.8 Comparative Adverbs
2.6.9 Adverbs Qualifying a Verb
2.6.10 Adverbs Qualifying an Adjective
2.6.11 Adverbs Qualifying an Adverb
2.6.12 Base Adverbs
2.6.13 Derived Adverbs
2.6.14 Compound Adverbs

2.7 Pronouns
2.7.1 First Person Pronouns
2.7.2 Second Person Pronouns
2.7.3 Third Person Pronouns
2.7.4 Reflexive Pronouns
2.7.5 Demonstrative Pronouns
2.7.6 Relative Pronouns
2.7.7 Interrogative Pronouns
2.7.8 Indefinite Pronouns
2.7.9 Phenomenon of Onomatopoeia Regarding Pronouns

2.8 Postpositions
2.8.1 Postpositions Expressing Time
2.8.2 Postpositions Expressing Place
2.8.3 Postpositions Expressing Instrument
2.8.4 Postpositions Expressing Purpose
2.8.5 Postpositions Expressing Comparison

2.9 CONJUNCTIONS
2.9.1 Coordinate Conjunctions
2.9.2 Subordinate Conjunctions
2.9.3 Explanatory Conjunctions
2.9.4 Conjunctions Indicating Condition
2.9.5 Conjunctions Indicating Result
2.9.6 Disjunctive or Alternative Conjunctions
2.9.7 Conjunctions Expressing Purpose
2.9.8 Conjunctions Indicating Reason
2.9.9 Illative Conjunctions

2.10 INTERJECTIONS
CONCLUDING COMMENTS

CHAPTER 6: DISAMBIGUATION OF ‘तो’ (‘to’)

1. INTRODUCTION
2. MARATHI VERB MORPHOLOGY
   2.1 THE ‘aakhyaata’ THEORY
      2.1.1 Theoretical Paradigm of ‘aakhyaata’ Theory
         2.1.1.1 Agreement
         2.1.1.2 Types of ‘kriyaapada’s
         2.1.1.3 Rules of Stem Formation
         2.1.1.4 ‘aakhyaata pratyaya’
            2.1.1.4.1 Classification of ‘aakhyaata pratyaya’
               2.1.1.4.1.1 Classification Based on Phonemic Shape
               2.1.1.4.1.2 Classification Based on Gender Agreement
   3. THE INFLECTIONAL VERB SUFFIX ‘to’
   4. TECHNIQUES FOR DISAMBIGUATION OF THE SUFFIX ‘to’
      4.1 THE GROUNDWORK FOR THE DISAMBIGUATION OF THE SUFFIX ‘to’
      4.2 THE METHODOLOGY FOR THE DISAMBIGUATION OF THE SUFFIX ‘to’
      4.3 IMPLEMENTATION
         4.3.1 The Definition of the Task for Implementation
         4.3.2 Algorithm
         4.3.3 The Flow Chart
         4.3.4 Design for Implementation
         4.3.5 Building the System
         4.3.6 GUI, Graphical User Interface
         4.3.7 Problems in Building the System for Tagging and Tokenizing
      4.4 EVALUATION OF THE SYSTEM
         4.4.1 Recall and Precision
         4.4.2 Error Analysis
      4.5 APPLICATION OF THE SYSTEM
   CONCLUDING COMMENTS

REFERENCES
   Introduction
   Chapter1, Chapter2, Chapter3, Chapter4, Chapter5, Chapter6