

## Subject Indexing for Bengali Publications: some issues and perspectives

বাংলা প্রকাশনার বিষয়সূচীকরণ: কিছু বিচার্য বিষয় এবং ভবিষ্যত

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**Abstract :** Since the days of Cutter, there is an unnumbered good indexing systems formulated for English language documents such as Kaiser's Systematic Indexing, Ranganathan's Chain Indexing system, Ganesh Bhattacharya's POPSI, Dereck Austin's PRECIS and so on. But in Indian languages, there is no standard subject indexing system formulated. To meet up the demand of the users and their different approaches in Bengali documents searching, a sample Subject Indexing module in Bengali has been prepared. This paper shows some rules and their application to Bengali documents. It would be applicable for other Indian languages also.

**Keywords:** Bengali Language, Bengali Publication, Subject Indexing

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### I. Introduction

The need to store and retrieve written information became increasingly important over centuries, especially with inventions like paper and printing press. Conventional approaches to managing large collections of information originate from the discipline of librarianship. Commonly, items such as books and other non-book materials were indexed using cataloguing schemes. Actually, the purpose of an information retrieval system is to bring the information closer to the needs of the users. In this process, it is necessary to create a surrogate file of the documents that may be searched or accessed according to various criteria of user requirements. The most important criteria are the subject matter or content of the documents. Indexing procedure tries to identify a document by its subject content.

#### What is Subject Indexing?

Subject Indexing is representing the contents of a document by one or more terms denoting the concepts, and arranging them in a systematic way to enable a searcher to locate information which is likely to provide answer to his question. That is to say that, subject Indexing serves as an access mechanism for retrieval and location of bibliographical item, through the terms assigned for that item. [1]

The subject indexing process essentially involves three steps:

- Analyzing conceptually the contents of the documents;
- Translation of the conceptually analyzed entities in a particular set of index terms; and
- Organizing the terms in a searchable order.

#### Need and Importance of the study

According to the census of 2001, there are 1365 *rationalised mother tongues*, 234 identifiable *mother-tongues* and 122 major languages. Of these, 29 'languages' have more than a million native speakers, 60 have more than 100,000 and 122 have more than 10,000 native speakers. The Eighth Schedule of the Indian Constitution lists 22 languages, which have been referred to as *scheduled* languages and given recognition, status and official encouragement. In addition, the Government of India has awarded the distinction of *classical language* to Tamil, Sanskrit, Telugu, Kannada, Malayalam and Odia (formerly known as Oriya). There is paucity in development of Indexing Language (IL) in Indian languages. It is ideal that every language has its own IL and at least a family of languages have an IL.

**Bengali** (/ben'go:li/), also known by its endonym **Bangla** (/ba:ŋla:/; বাংলা ['baŋla]), is an Indo-Aryan language spoken in Indian Subcontinent. It is the national and official language of the People's Republic of Bangladesh, and the official language of several eastern and north-eastern states of the Republic of India, including West Bengal, Tripura, Assam (Barak Valley) and Andaman and Nicobar Islands. It is also one of the 22 scheduled languages of India. With over 210 million speakers, Bengali is the seventh most spoken native language in the world. Bengali is the easternmost Indo-European language, it has been influenced by other language families prevalent in South Asia, notably the Dravidian, the Austroasiatic, and the Tibeto-

Burman families, all of which contributed to Bengali vocabulary and provided the language with some structural forms. Dictionaries from the early 20th century attributed slightly more than half of the Bengali vocabulary to native words (i.e., naturally modified Sanskrit words, corrupted forms of Sanskrit words, and loanwords from non-Indo-European languages), about 30 percent to unmodified Sanskrit words, and the remainder to foreign words. Dominant in the last group was Persian, which was also the source of some grammatical forms. More recent studies suggest that the use of native and foreign words has been increasing, mainly because of the preference of Bengali speakers for the colloquial style. Today, Bengali is the primary language spoken in Bangladesh and the second most spoken language in India. ([https://en.wikipedia.org/wiki/Bengali\\_language](https://en.wikipedia.org/wiki/Bengali_language)) The structure of Indian languages in general is different from that of English. Hence, they need an IL, each derived on the basis of their structure. Since India is a multilingual country and is considered as a linguistic area, the comprehensive rules derived in developing an IL in Bengali may be applied to other Indian languages. This study of preparation of a module has utilitarian value to prepare the pre-coordinate IL in Bengali in particular and other Indian languages in general.

## II. Some Linguistics Features Of Bengali Language:

### 2.1. Dialects

Regional variation in spoken Bengali constitutes a dialect continuum. Linguist Suniti Kumar Chattopadhyay grouped these dialects into four large clusters—Rarh, Banga, Kamarupa and Varendra; But many alternative grouping schemes have also been proposed. During the standardization of Bengali in the 19th century and early 20th century, the cultural center of Bengal was in the city of Kolkata, founded by the British. What is accepted as the standard form today in both West Bengal and Bangladesh is based on the West-Central dialect of Nadia District, located next to the border of Bangladesh. There are cases where speakers of Standard Bengali in West Bengal will use a different word from a speaker of Standard Bengali in Bangladesh, even though both words are of native Bengali descent. For example, the word salt is নুন *nun* in the west which corresponds to লবণ *lobhôn* in the east.

### 2.2 Spoken and literary varieties

Two styles of writing, involving somewhat different vocabularies and syntax, have emerged:

- a. *Shadhu-bhasha* (সাধুভাষা ← সাধু *shadhu* "sage" + ভাষা *bhasha* "language") was the written language, with longer verb inflections and more of a Pali and Sanskrit-derived *Tatsama* vocabulary.
- b. *Cholitobhasha* (চলিতভাষা ← চলিত *chôlitô* "current" + ভাষা *bhasha* "language"), known by linguists as Standard Colloquial Bengali, is a written Bengali style exhibiting a preponderance of colloquial idiom and shortened verb forms, and is the standard for written Bengali now

### 2.3 Phonology

The phonemic inventory of standard Bengali consists of 29 consonants and 7 vowels, including 6 nasalized vowels. Bengali is known for its wide variety of diphthongs, combinations of vowels occurring within the same syllable.

#### 2.3.1 Stress

In standard Bengali, stress is predominantly initial. Bengali words are virtually all trochaic; the primary stress falls on the initial syllable of the word, while secondary stress often falls on all odd-numbered syllables thereafter, giving strings such as in সহযোগিতা *shô-hô-jo-gi-ta* "cooperation", where the **boldface** represents primary and secondary stress.

#### 2.3.2 Consonant clusters

Native Bengali words do not allow initial consonant clusters; the maximum syllabic structure is CVC (i.e. one vowel flanked by a consonant on each side). Many speakers of Bengali restrict their phonology to this pattern, even when using Sanskrit or English borrowings, such as গেরাম *geram* (CV.CVC) for গ্রাম *gram* (CCVC) "village" or ইস্কুল *iskul* (VC.CVC) for স্কুল *skul* (CCVC) "school".

#### 2.3.3 Orthographic depth

The Bengali script in general has a comparatively shallow orthography, i.e., in most cases there is a one-to-one correspondence between the sounds (phonemes) and the letters (graphemes) of Bengali. But grapheme-phoneme inconsistencies do occur in certain cases.

#### 2.3.4 Uses

The script used for Bengali, Assamese and other languages is known as Bengali-Assamese or Eastern Nagari script. The script is known as the Bengali alphabet for Bengali and its dialects and the Assamese alphabet for Assamese language with some minor variations.

### **2.3.5 Romanization**

There are various ways of Romanization systems of Bengali created in recent years which have failed to represent the true Bengali phonetic sound. The Bengali alphabet has often been included with the group of Brahmic scripts for romanization where the true phonetic value of Bengali is never represented. Some of them are the International Alphabet of Sanskrit Transliteration or IAST system (based on diacritics), "Indian languages Transliteration" or ITRANS (uses upper case alphabets suited for ASCII keyboards), and the National Library at Kolkata romanization.

In the context of Bengali romanization, it is important to distinguish transliteration from transcription. Transliteration is orthographically accurate (i.e. the original spelling can be recovered), whereas

### **2.3.6 Grammar**

Bengali nouns are not assigned gender, which leads to minimal changing of adjectives (inflection). However, nouns and pronouns are moderately declined (altered depending on their function in a sentence) into four cases while verbs are heavily conjugated, and the verbs do not change form depending on the gender of the nouns.

#### ➤ Word order

As a head-final language, Bengali follows subject–object–verb word order, although variations to this theme are common. Bengali makes use of postpositions, as opposed to the prepositions used in English and other European languages. Determiners follow the noun, while numerals, adjectives, and possessors precede the noun.

#### ➤ Nouns

Nouns and pronouns are inflected for case, including nominative, objective, genitive (possessive), and locative. In this sense, all nouns in Bengali, unlike most other Indo-European languages, are similar to mass nouns.

#### ➤ Verbs

There are two classes of verbs: finite and non-finite. Non-finite verbs have no inflection for tense or person, while finite verbs are fully inflected for person (first, second, third), tense (present, past, future), aspect (simple, perfect, progressive), and honor (intimate, familiar, and formal), but not for number. Conditional, imperative, and other special inflections for mood can replace the tense and aspect suffixes. The number of inflections on many verb roots can total more than 200. ([https://en.wikipedia.org/wiki/Bengali\\_language](https://en.wikipedia.org/wiki/Bengali_language))

## **III. Objectives Of The Study**

The objectives of this study are as follows:

- Study of different linguistic theories and their relevance and application to indexing language.
- Study of properties of Bengali language relevant to indexing language.
- Study of different articles in Bengali publications, its use for the preparation of rules for subject indexing in Bengali
- Study of different steps for preparation of subject headings and problems involved in deriving the descriptors in Bengali.
- To meet up the demand of the users and their different approaches.
- Preparation of a sample Subject indexing module in Bengali.
- Study of feasibility of application of computers for developing IL.

## **IV. Hypothesis**

Some hypothesis on which the research is based is as follows:

- ❖ The need for pre-coordinate indexing language is much felt in Indian languages.
- ❖ The concepts of IL can be analyzed properly with the knowledge of linguistics.
- ❖ Any language, natural or artificial has its structure and vocabulary.
- ❖ The pre-coordinate indexing language model derived for Bengali is applicable to all the Indian languages.

## **V. Methodology**

- While forming the rules of subject indexing for Bengali publication, the principles adopted in major indexing systems like POPSI, PRESIS are taken into consideration.
- In case of subject indexing in English language, there are so many subject heading list like ‘Sears List of Subject Headings’, ‘Library of Congress Subject Headings’ etc. But in Indian languages, there is no standard subject heading list. Here I have followed the books ‘Science: Subject Heading (বিজ্ঞান: বিষয় শিরোনাম) / by Pinakinath Mukhopadhyay’ for using the terminology in science,[4] ‘Subject Heading Structure System : Philosophy, Literature and Arts (বিষয় শিরোনাম পদ্ধতি: দর্শন, সাহিত্য, শিল্পকলা) / by Ratna

Bandyopadhyay' for using the terminology in philosophy, arts and humanities [5] and an unpublished Ph.D thesis of Department of Library and Information Science, Rabindra Bharati University 'List of Subject Headings on Social Sciences: Problems and its Solutions (বাংলা ভাষায় সমাজবিজ্ঞানের বিষয় শিরোনাম তালিকা : সীমাবদ্ধতা ও তার সমাধান)/ by Madhab Chandra Chattopadhyay; guided by Pinakinath Mukhopadhyay for terminology in Social Science.[6]

- Some punctuation is used to separate each elementary category (প্রাথমিক শ্রেণী), their facets (প্রভাগ) and qualifiers (বিশেষক) from one another and also to establish their relations.
- Vertical slash '|' is used to separate the each elementary category (Discipline, Entity, Action and Property) from one another. Comma ',' is used for separating the three common qualifier (Time, Environment and Space). When the qualifier 'Time' is used as Dependent element, then it should be preceded by Hyphen '-'. Hyphen '-' is used also in 'Whole-Part relations', between 'any Elementary Category and Qualifier of the Elementary Category', between 'Qualifier and Qualifier of Qualifiers', 'concept of Agent' and 'Form Qualifier'. Viewpoint is to be used as 'Form Qualifier'. In case of 'Sample Survey' or 'Study Region', it should be preceded by Hyphen '-'. Parenthesis '(') is used for understanding the different types of 'Phase Relations' such as General, Bias, Comparison, Similarity, Difference, Application and Influence. Semicolon ';' is used in between the two same Elementary Category and between the two same Qualifier.
- In subject indexing, all concepts are arranged in syntactical manner.
- Different articles have been collected from different science, social science and humanities journals in Bengali, from Bengali books and from Bengali newspapers as sample.
- In the Illustrative part for demonstrating rules, each article is divided into four parts: i) citation; ii) abstract proper; iii) analysis of the article and iv) an Arrangement of index entry.

## **VI. Some Rules For Preparing Subject Indexing For Bengali Publication**

**6.1 In a subject proposition, there are four elementary categories : i) Discipline (বিষয়), ii) Entity(সত্তা), iii) Action(ক্রিয়া) and iv) Property(গুণ).**

i) Discipline (বিষয়) : An elementary category that includes conventional field of study, or any aggregate of such fields, or artificially created fields analogous to those mentioned above. It may be a. the traditional pure discipline (example - Mathematics); b. the application of traditional pure discipline (example- Medicine); c. the comparatively new pure disciplines distilled from practice in action (example- Management Science); d. the discipline due to fusion of two or more recognized disciplines (example- Biochemistry); e. the subdivision of recognized discipline (example- Logic, Ethics etc. in the subdivision of Philosophy); f. the discipline as an aggregate (example- Social Science). [2]

ii) Entity (সত্তা) : An elementary category that includes manifestations having perceptual correlates or only conceptual existence, as contrasted with their properties, and action performed by them or on them. Example : Energy, Light, Plants, Animals, Place, Time etc. [2]

iii) Action (ক্রিয়া) : An elementary category that includes manifestations denoting the concept of 'doing'. An action manifests itself as 'self action' or 'external action'. For examples: Function, Migration etc. are 'self action' and Treatment, Selection etc. are 'external action'. [2]

Action may be Transitive action and Intransitive action, One-way action and Two-way action.

- a. One-way action : It may have an object and a performer. Example: Management of Libraries . Here, the term 'Management' is action and the term 'Libraries' is Entity or object.
- b. Two-way action : Two-way actions are those which imply cooperation or interaction between the protagonists. If one entity is having relations or cooperating with other entity, then by definition the latter is also indulging in relations or cooperating with the former. The Two-way action is used to indicate the relation like 'contract', 'cooperation', 'cultural relation', 'economic relation', 'foreign relation', 'negotiations' etc. [1, 3]

1) Example : Cultural relations between India and Bangladesh. Here the term 'Cultural relation' is two-way action.

iv) Property (গুণ) : An elementary category that includes manifestations denoting the concept of 'attribute'- qualitative or quantitative. Example : Effect, Capability, Efficiency, Utility etc. [2]

6.2 In a subject proposition, a 'Qualifier' is used to qualify the manifestation of any one of the elementary categories Discipline, Entity, Action and Property, without disturbing its conceptual wholeness. As a result, it decreases the extension and increases the intension of the qualified manifestation without disturbing its conceptual wholeness. A qualifier can qualify a manifestation of any one of the elementary categories, as

well as two or more elementary categories. Qualifiers are of two types: a. Common Qualifiers and b. Special Qualifiers. [2]

a. Common Qualifiers : Time, Environment, Space and Form are the Common Qualifiers have the property of qualifying a combination of two or more elementary categories.

b. Special Qualifiers : A Special Qualifier is used to qualify only one of the elementary categories. That is it may be of Discipline-based, or Entity-based, or Property-based or Action-based. Special Qualifiers can be divided into two types: [2]

➤ Those that require a phrase or auxiliary words to be inserted between the term and thus forming a complex phrase. It may be treated also 'Application Phase relation'. Example : Indexing using computer (কম্পিউটারের প্রয়োগে সূচীকরণ). Here the term using (প্রয়োগ) is called 'Application Phase' or 'Complex Phrase'. It is used to relate the two terms 'Indexing (সূচীকরণ)' and 'Computer (কম্পিউটার)'.

➤ Those that do not require auxiliary words or phrase to be inserted between the terms, but automatically form an acceptable compound term denoting Species. Example : 'Migrated birds (পরিযায়ী পাখি)'. Here the term Migrated (পরিযায়ী) is called compound term and may be treated as a special qualifier.

### 6.2.1 Time as a common qualifier : The term 'Time Qualifier' refers to a common qualifier derived from the manifestation of Entity denoting a 'Period'.

- ❖ Time is not only any definite period, it may be treated as a decade, century etc.
- ❖ It may be treated as a definite historical period such as Vedic period, Sultani period, Mughal period etc.
- ❖ It may be treated as a specific time in a day such as Morning, Night etc.
- ❖ Time is treated as seasons such as Summer, Autumn, Winter, Spring etc.
- ❖ It may be treated as a meteorological period such as Dry, Wet etc.
- ❖ Sometimes 'time' may be treated as a dependent element.

Example : The preservation of 18<sup>th</sup> century paintings (অষ্টাদশ শতকের চিত্রকলার সংরক্ষণ)

Paintings (Entity) | চিত্রকলা (সত্তা)

18<sup>th</sup> Century (qualifier as well as dependent element of the entity) | অষ্টাদশ শতক (সত্তার বিশেষক এবং নির্ভরযোগ্য উপাদান)

Preservation (Action) | সংরক্ষণ (ক্রিয়া)

6.2.2. Environment as a common qualifier : The term 'Environment Qualifier' refers to a common qualifier derived from the manifestation of Entity denoting an 'Environment'. Example: Coast Land, Mountain, Desert, Tropical, Fresh Water, Lake, River, Soilness, Wild etc.

Illustrative Example : The Cultivation of zinger in the hill area of Darjeeling (দার্জিলিং-এর পার্বত্য অঞ্চলে আদা চাষ)

Botanical Sciences (Discipline) | উদ্ভিদবিদ্যা (বিষয়)

Zinger (Entity) | আদা (সত্তা)

Cultivation (Action) | কর্ষণ/চাষ (ক্রিয়া)

Hill area (Environment qualifier) | পার্বত্য অঞ্চল ('সময়' বিশেষক)

Darjeeling (Space qualifier) | দার্জিলিং ('স্থান' বিশেষক)

6.2.3. Space as a common qualifier : The term 'Space Qualifier' refers to a common qualifier derived from the manifestation of Entity denoting the surface of earth as a whole or in portion, sometimes representing the people, flora, fauna etc. within it. Example : World, Continents, Countries, Islamic countries, States, Districts etc. [2]

▪ Sometimes 'Space' may be treated as 'Entity' when the concept indicating 'space' constitutes the principal or only entity in a subject. Example : A Work on India [1]

India (Entity) | ভারতবর্ষ (সত্তা)

Here the term 'India' is treated as an 'Entity'.

▪ Sometimes the terms such as 'Districts', 'Panchayet' is added with the 'space name' to qualify the particular 'space'. In such a case, the term 'Districts', 'Panchayet' etc. is denoted within parenthesis (). Example: Schools of Burdwan District



Here,

Education (Subject)	শিক্ষা (বিষয়)
School (Entity)	বিদ্যালয় (সত্তা)
Burdwan (District) (Space)	বর্ধমান(জেলা)(‘স্থান’ বিশেষক)

- Sometimes ‘Space’ may be treated as ‘Study regions’ when a work contains a particular instance/sample (a locality), as a model or source of evidence from which the author draws general conclusions. [1] Example : Teaching in universities in India by foreigners : a sample survey of West Bengal

Analysis of the subject proposition is :

Education (Subject)
Universities (Entity)
Teaching (Action)
Foreigners (Agent of transitive action)
West Bengal (Study region as well as Space qualifier)

6.2.4 Form as a common qualifier : A treatment on a subject in a document may be presented in a distinct pattern or style. In this context, the term ‘Form Qualifier’ refers to a common qualifier derived from a manifestation of Property denoting a ‘pattern’ or ‘style’. Example : Bibliography, Encyclopaedia, Dictionary, Periodical, History etc. [2]

- Sometimes ‘Viewpoint’ may be treated as a Form : when the terms ending in ‘viewpoints’ preceded by words such as ‘Christian Viewpoint’, ‘Feminist Viewpoint’ etc. [1]
- Terms ending in ‘Perspectives’ preceded by words identify disciplines such as ‘Historical Perspectives’, ‘Political Perspectives’ etc. [1]
- Terms ending in ‘Aspects’ preceded by words subjected to special study or emphasis such as ‘Social Aspects’, ‘Philosophical Aspects’ etc. [1]
- Target may be treated as Form. Target which expresses the name of any specific class of users for whom a given document is intended. It may be called as ‘Bias Phase relation’. Example: Literature for Scientists

6.3. In a subject proposition, a qualifier may be manifested with another qualifier for deriving a new qualifier. Example : The Ghost stories of Shirshendu Mukhopadhyay (শীর্ষেন্দু মুখোপাধ্যায়ের ভূতের গল্প)

Here the analysis is :

Literature (Discipline)	সাহিত্য (বিষয়)
Bengali literature (Entity)	বাংলা সাহিত্য (সত্তা)
Short stories (Qualifier of Entity)	বাংলা ছোটগল্প (সত্তার বিশেষক)
Ghost stories (Qualifier of Qualifier of Entity)	ভূতের গল্প (সত্তার বিশেষকের বিশেষক)

6.4. Phase Relation : The term ‘Phase’ refers to a subject component of a complex subject. In Phase relation, two subjects-simple or compound, combine with each other on the basis of some relationships such as, General, Bias, Comparison, Similarity, Difference, Application and Influence. Examples of different types of Phase relations are :

- ✚ Science and Religion (General Phase relation)
- ✚ Literature for Scientists (Bias Phase relation)
- ✚ Comparative study of French Literature and Bengali Literature (Comparison Phase relation)
- ✚ Similarity between Punjabi Culture and Bengali Culture (Similarity Phase relation)
- ✚ Difference between Chemistry and Physics (Difference Phase relation)
- ✚ Application of Science and Technology in Agriculture (Application Phase relation)
- ✚ Influence of Politics on Religion (Influence Phase relation)

6.5 Whole-Part Relation : In relation to a Universe of subjects, all the different subjects comprised by it, taken together, is a ‘whole’. Example: ‘Human bodies’ viewed as comprising of ‘Male human bodies’ and ‘Female human bodies’ is a ‘whole’. [2]

In relation to a universe of subjects deemed to be a whole, a ‘part’ is one of its sub-universes not maintaining the conceptual wholeness of its source-universe, but maintaining a distinction on the basis of a characteristic of its

own. The relationship between a whole and its parts is described as a 'Whole-Part' relationship. The extension of a 'part' is smaller than that of its source-universe. The intension of a 'part' is greater than that of its source-universe. [2]

The following situations, 'Part' relations may be indicated:

- Parts or subassemblies of entities or locations. [3]

Example : Wheels of cars - --- Car (entity)

Wheel (part of entity)

- Subsystem of a system

Example: Students of schools ----- School (entity)

Students (part of entity)

- Part of an action

Example : Bowling in cricket ----- Cricket (action)

Bowling (part of action)

- Abstract part of intellectual or abstract concepts

Example : Myth in Hinduism ----- Hinduism (entity)

Myth (part)

- Input of a system

Example : Coal in steam engines ----- Steam engine (entity)

Coal (part)

- Output of a system

Example : Exhaust of steam engines ----- Steam engine (entity)

Exhaust (part)

6.6 Agent : Agent means by whom the performance is done. The concept of 'Agent' may be indicated in the following situations:

◆ If the subject contains an agent of a transitive action with a specified object.[1] Example : Cataloguing of books by students -----

Books (entity)

Cataloguing (action)

Students (agent)

◆ If the subject contains an agent of a transitive action with object not specified but implied. [1]Example : Reading by musicians -----

Reading (action)

Musicians (agent)

◆ Sometimes the subject contains an intake upon which an action/physiological process is performed.[3] Example: Digestion of grasses by cows ----- Cow (entity)

Digestion (action)

Grasses (agent)

## VI. Illustrative Examples In Demonstrating Rules

Examples of some Bengali articles along with their English translations are shown herewith:

7.1 বাংলা ভাষায় চলচ্চিত্র চর্চা : ১৯২৩ -৩৩ / সম্পাদনা দেবীপ্রসাদ ঘোষ .- কলকাতা সিনে ক্লাব অফ ক্যালকাটা, ১৯৯৩

Study of Cinema in Bengali language : 1923-33 / edited by Debiprasad Ghosh .- Kolkata : Cine Club of Calcutta, 1993

সারসংক্ষেপ : ১৯২৩ থেকে ১৯৩৩ সালের মধ্যে প্রযোজিত বাংলা চলচ্চিত্রগুলো সম্পর্কে বিস্তৃত আলোচনা এই প্রবন্ধে করা হয়েছে।

**Abstract** : This essay describes about the Bengali movies which are produced during the period of 1923 to 1933

বিশ্লেষণ :	শিল্পকলা	=	বিষয়		Arts	=	Subject
	চলচ্চিত্র	=	সত্তা		Cinema	=	Entity
	বাংলা চলচ্চিত্র	=	সত্তার বিশেষক		Bengali cinema	=	Qualifier of entity
	অধ্যয়ন	=	ক্রিয়া		Study	=	Action
	১৯২৩-১৯৩৩	=	'সময়' বিশেষক		1923-1933	=	'Time' qualifier

(See Rule no.6.1, 6.2)

**নির্দিষ্ট বিষয় সংলেখ**

চলচ্চিত্র- বাংলা চলচ্চিত্র। অধ্যয়ন, ১৯২৩-১৯৩৩

**Specific subject entry**

Cinema – Bengali cinema | Study, 1923-1933

**বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস**

অধ্যয়ন, ১৯২৩-১৯৩৩ / চলচ্চিত্র – বাংলা চলচ্চিত্র

চর্চা **দেখুন** অধ্যয়ন

চলচ্চিত্র – বাংলা চলচ্চিত্র। অধ্যয়ন, ১৯২৩-১৯৩৩

বাংলা চলচ্চিত্র । অধ্যয়ন, ১৯২৩-১৯৩৩ / চলচ্চিত্র

শিল্পকলা **আরও দেখুন** চলচ্চিত্র

**Alphabetical Arrangement of Subject Entries**

Arts see also Cinema

Bengali cinema | Study, 1923-1933 / Cinema

Cinema – Bengali cinema | Study, 1923-1933

Study and teaching see Study

Study, 1923-1933 / Cinema - Bengali cinema

**7.2. স্বদেশী আন্দোলন ও বাংলার বিজ্ঞানচর্চা / নীলিমা দত্ত (জ্ঞান ও বিজ্ঞান - ৬১ (৫), মে ২০০৮)**

**Swadeshi movement and the study of science in Bengal / Nilima Dutta (Jnan Bijnan -.61(5), May 2008)**

সারসংক্ষেপ: বাংলার স্বদেশী আন্দোলন বাংলার মননে, বাংলার অর্থনৈতিক ও শিল্পবিষয়ক পরিকাঠামোয় বিরাট প্রভাব বিস্তার করে। ধীরে ধীরে এই আন্দোলনের প্রভাব সারা ভারতে ছড়িয়ে পড়ে এবং ইংরেজদের বিরুদ্ধে জাতীয় আন্দোলনের পথ প্রশস্ত করে। লেখিকা ক্ষুদ্র পরিসরে ভারতের এই বিরাট ইতিহাসের মূল্যবান দিক আমাদের সামনে তুলে ধরেছেন।

**Abstract** : Swadeshi movement in Bengal influences so much on the economic and industrial infrastructure of Bengal. Then it is extended to all over India and encourages forming a national movement against Englishmen. The writer shows the valuable part of history through her writing.

**বিশ্লেষণ** : ভারতের ইতিহাস = বিষয়  
বঙ্গদেশের(অবিভক্ত) ইতিহাস = সত্তা  
স্বদেশী আন্দোলন = সত্তার অংশ  
বিজ্ঞানচর্চা = (সাধারণ পর্যায়ী সম্পর্ক)

**Analysis** : Indian history = Subject  
Bengal(undivided) history = Entity  
Swadeshi movement = Part of the entity  
Science study = (General Phase relation)

(See Rule no.6.4, 6.5)

**নির্দিষ্ট বিষয় সংলেখ**

বঙ্গদেশের(অবিভক্ত) ইতিহাস- স্বদেশী আন্দোলন (সাধারণ পর্যায়ী সম্পর্ক) বিজ্ঞানচর্চা

**Specific Subject entry**

Bengal(undivided) history - Swadeshi movement (General Phase relation) Science study

**বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস**

বঙ্গদেশের(অবিভক্ত) ইতিহাস – স্বদেশী আন্দোলন (সাধারণ পর্যায়ী সম্পর্ক) বিজ্ঞানচর্চা

বাংলার ইতিহাস **দেখুন** বঙ্গদেশের(অবিভক্ত) ইতিহাস

বিজ্ঞানচর্চা / বঙ্গদেশের(অবিভক্ত) ইতিহাস – স্বদেশী আন্দোলন (সাধারণ পর্যায়ী সম্পর্ক)

ভারতের ইতিহাস **আরও দেখুন** বঙ্গদেশের(অবিভক্ত) ইতিহাস

স্বদেশী আন্দোলন (সাধারণ পর্যায়ী সম্পর্ক) বিজ্ঞানচর্চা / বঙ্গদেশের(অবিভক্ত) ইতিহাস

**Alphabetical Arrangement of Subject Index entries :**

Bengal(undivided) history - Swadeshi movement (General Phase relation) Science study

History see Bengal(undivided) history

Indian history see also Bengal(undivided) history

Science study / Bengal(undivided) history - Swadeshi movement (General Phase relation)

Swadeshi movement (General Phase relation) Science study / Bengal(undivided) history



7.3. প্রাচীন ভারতের স্থাপত্যশিল্প: একটি অনুসন্ধান | জগৎপতি সরকার (জ্ঞান ও বিজ্ঞান .- ৬০(১০-১১), অক্টোবর-নভেম্বর ২০০৭)

Architecture in Ancient India : a research study / Jagatpati Sarkar (Jnan Bijnan .-60(10-11), October-November 2007)

সারসংক্ষেপ: প্রাচীন ভারতের স্থাপত্যশিল্প সম্পর্কে একটি গবেষণাধর্মী আলোচনা।

Abstract : A research study on Architecture of Ancient India

বিশ্লেষণ : শিল্পকলা = বিষয়  
স্থাপত্য = সত্তা  
প্রাচীন যুগ = 'সময়' বিশেষক  
ভারতবর্ষ = 'স্থান' বিশেষক  
গবেষণা = 'রূপ' বিশেষক

Analysis : Art = Subject  
Architecture = Entity  
Ancient Period = 'Time' Qualifier  
India = 'Space' Qualifier  
Research = 'Form' Qualifier

(See Rule no.6.2)

নির্দিষ্ট বিষয় সংলেখ

স্থাপত্য, প্রাচীন যুগ, ভারতবর্ষ – গবেষণা

Specific Subject Entry

Architecture, Ancient period, India - Research

বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস

গবেষণা / স্থাপত্য, প্রাচীন যুগ, ভারতবর্ষ  
প্রাচীন যুগ , ভারতবর্ষ – গবেষণা / স্থাপত্য  
ভারত দেখুন ভারতবর্ষ  
ভারতবর্ষ – গবেষণা / স্থাপত্য, প্রাচীন যুগ  
শিল্পকলা আরও দেখুন স্থাপত্য  
স্থাপত্য , প্রাচীন যুগ, ভারতবর্ষ – গবেষণা  
স্থাপত্যশিল্প দেখুন স্থাপত্য

Alphabetical Arrangement of Subject Index Entries

Ancient period, India – Research / Architecture  
Architecture, Ancient period, India - Research  
Art see also Architecture  
India – Research / Architecture, Ancient period  
Research / Architecture, Ancient period, India

7.4 ভারতীয় ডাকটিকিটে ভেষজ উদ্ভিদ / কল্যাণ চক্রবর্তী ও মনাজলি বন্দ্যোপাধ্যায় (জ্ঞান ও বিজ্ঞান .- ৬(২), ফেব্রুয়ারী ২০০৭)

Medicinal plant in Indian Postage stamp / Kalyan Chakraborti and Monanjali Bandyopadhyay (Jnan Bijnan .- 6(2), February 2007)

সারসংক্ষেপ: দেশবিদেশের নানা ডাকটিকিট সংগ্রহ, সংরক্ষণ ও সজ্জীকরণ অনেকের শখ। এই প্রবন্ধের আলোচ্য বিষয় হল ভারতে উদ্ভিদকেন্দ্রিক ফিলাটেলি। একটি দেশের সংস্কৃতি, লোকজীবন, উদ্ভিদ ও প্রাণীবৈচিত্র্য, জাতীয় জীবন, মনীষীদের পরিচয় ডাকটিকিটের মধ্যে দিয়ে প্রকাশিত হয়।

Abstract : This essay describes about the plant centered Philately in India. Culture, folk life, bio-diversity of plants and animals, national life, identity of scholars of the country-all is revealed through postage stamp.

বিশ্লেষণ : গ্রাফিক্স আর্ট = বিষয়  
ডাকটিকিট = সত্তা  
ভারতীয় ডাকটিকিট = সত্তার বিশেষক  
ওষধি উদ্ভিদ = সত্তার বিশেষকের বিশেষক

**Analysis :** Graphic art = Subject  
Postage stamp = Entity  
Indian Postage stamp = Qualifier of Entity  
Medicinal plant = Qualifier of the Qualifier of Entity

(See Rule no.6.3)

**নির্দিষ্ট বিষয় সংলেখ**

ডাকটিকিট- ভারতীয় ডাকটিকিট- ওষধি উদ্ভিদ

**Specific Subject Entry**

Postage stamp-Indian Postage stamp-Medicinal plant

**বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস**

ওষধি উদ্ভিদ / ডাকটিকিট - ভারতীয় ডাকটিকিট  
গ্রাফিক্স আর্ট **আরও দেখুন** ডাকটিকিট  
ডাকটিকিট - ভারতীয় ডাকটিকিট - ওষধি উদ্ভিদ  
ভারতীয় ডাকটিকিট - ওষধি উদ্ভিদ / ডাকটিকিট  
ভেষজ উদ্ভিদ **দেখুন** ওষধি উদ্ভিদ

**Arrangement of Subject Index Entries**

Graphic art **see also** Postage stamp  
Indian Postage stamp-Medicinal plant / Postage stamp  
Medicinal plant / Postage stamp-Indian Postage stamp  
Postage stamp-Indian Postage stamp-Medicinal plant

**7.5 পশ্চিমবঙ্গে বাংলা চলচ্চিত্রে রবীন্দ্রসঙ্গীতের প্রভাব (পশ্চিমবঙ্গ.-মে ২০০৬)**

**Influence of Rabindrasangeet in Bengali cinema of West Bengal (Paschimbanga.-May 2006)**

**সারসংক্ষেপ:** বাংলা চলচ্চিত্রে রবীন্দ্রসঙ্গীতের ব্যবহার ও প্রভাব নিয়ে বিস্তৃত আলোচনা এই প্রবন্ধের বিষয়।

**Abstract :** The main theme of the essay is the influence and uses of Rabindrasangeet in Bengali cinema.

**বিশ্লেষণ:** শিল্পকলা = বিষয়

চলচ্চিত্র = সত্তা

বাংলা চলচ্চিত্র = সত্তার বিশেষক

রবীন্দ্রসংগীত = (প্রভাবিত পর্যায়ী সম্পর্ক)

পশ্চিমবঙ্গ = 'স্থান' বিশেষক

**Analysis:** Arts = Subject  
Cinema = Entity  
Bengali cinema = Qualifier of Entity  
Rabindrasangeet = (Influence Phase relation)  
West Bengal = 'Space' Qualifier

(See Rule no.6.2 and 6.4)

**নির্দিষ্ট বিষয় সংলেখ**

চলচ্চিত্রে - বাংলা চলচ্চিত্র (প্রভাবিত পর্যায়ী সম্পর্ক) রবীন্দ্রসঙ্গীত, পশ্চিমবঙ্গ

**বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস**

চলচ্চিত্র - বাংলা চলচ্চিত্র (প্রভাবিত পর্যায়ী সম্পর্ক) রবীন্দ্রসংগীত, পশ্চিমবঙ্গ  
পশ্চিমবঙ্গ / চলচ্চিত্র - বাংলা চলচ্চিত্র (প্রভাবিত পর্যায়ী সম্পর্ক) রবীন্দ্রসংগীত  
বাংলা চলচ্চিত্র (প্রভাবিত পর্যায়ী সম্পর্ক) রবীন্দ্রসংগীত, পশ্চিমবঙ্গ / চলচ্চিত্র  
রবীন্দ্রসংগীত, পশ্চিমবঙ্গ / চলচ্চিত্র - বাংলা চলচ্চিত্র (প্রভাবিত পর্যায়ী সম্পর্ক)  
শিল্পকলা **আরও দেখুন** চলচ্চিত্র  
সংগীত **আরও দেখুন** রবীন্দ্রসংগীত

**Alphabetical Arrangement of Subject Index Entries**

Art **see also** Cinema  
Bengali cinema (Influence Phase relation) Rabindrasangeet, West Bengal / Cinema  
Cinema - Bengali cinema (Influence Phase relation) Rabindrasangeet, West Bengal

Rabindrasangeet, West Bengal / Cinema - Bengali cinema (Influence Phase relation)  
West Bengal / Cinema - Bengali cinema (Influence Phase relation) Rabindrasangeet

7.6. প্রকাশকের দৃষ্টিতে প্রকাশনার সমস্যা ও তার সমাধান | তাজুল ইসলাম - বাংলাদেশ : দৈনিক দেশ , ডিসেম্বর ১৯৯০

**The problems and solutions of publications : Publishers viewpoint / Tajul Islam .- Bangladesh : Dainik Desh, December 1990**

**সারসংক্ষেপ:** প্রকাশনা বিশেষত বাংলা প্রকাশনার ক্ষেত্রে বাংলাদেশের প্রকাশকদের কী কী সমস্যার সম্মুখীন হতে হয় এবং তার সমাধান তাঁরা কীভাবে করেন সেটাই এই প্রবন্ধের আলোচ্য বিষয়।

**Abstract :** This essay depicts the role of publishers regarding the problems and solutions of Bengali publications in Bangladesh.

**বিশ্লেষণ :** প্রকাশনা = বিষয়  
বাংলা প্রকাশনা = সত্তা  
প্রকাশনার সমস্যা = সত্তার অংশ  
সমাধান = ক্রিয়া  
বাংলাদেশ = 'স্থান' বিশেষক  
প্রকাশক দৃষ্টিকোণ = 'রূপ' বিশেষক

**Analysis:** Publication = Subject  
Bengali publication = Entity  
Problem = Part of Entity  
Solution = Action  
Bangladesh = 'Space' Qualifier  
Publisher viewpoint = 'Form' Qualifier

(See Rule no. 6.2.3, 6.2.4 and 6.5)

**নির্দিষ্ট বিষয় সংলেখ:**

বাংলা প্রকাশনা – প্রকাশনার সমস্যা | সমাধান, বাংলাদেশ– প্রকাশক দৃষ্টিকোণ

**Specific Subject Entry:**

Bengali publication – Problem | Solution, Bangladesh – Publisher viewpoint

**বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস:**

প্রকাশক দৃষ্টিকোণ / বাংলা প্রকাশনা – প্রকাশনার সমস্যা। সমাধান, বাংলাদেশ  
প্রকাশনা আরও দেখুন বাংলা প্রকাশনা

প্রকাশনার সমস্যা। সমাধান, বাংলাদেশ – প্রকাশক দৃষ্টিকোণ / বাংলা প্রকাশনা  
বাংলাদেশ – প্রকাশক দৃষ্টিকোণ / বাংলা প্রকাশনা – প্রকাশনার সমস্যা। সমাধান। সমাধান  
বাংলা প্রকাশনা – প্রকাশনার সমস্যা। সমাধান, বাংলাদেশ – প্রকাশক দৃষ্টিকোণ  
সমাধান, বাংলাদেশ – প্রকাশক দৃষ্টিকোণ / বাংলা প্রকাশনা – প্রকাশনার সমস্যা

**Alphabetical Subject Index Entries:**

Bangladesh – Publisher viewpoint / Bengali publication – Problem | Solution  
Bengali publication – Problem | Solution, Bangladesh – Publisher viewpoint  
Problem | Solution, Bangladesh – Publisher viewpoint / Bengali publication  
Publication see also Bengali publication  
Publisher viewpoint / Bengali publication – Problem | Solution, Bangladesh  
Solution, Bangladesh – Publisher viewpoint / Bengali publication – Problem

7.7. আলোকময়ীদের কথা: বাংলায় মহিলা সম্পাদিত বাংলা সাময়িক পত্র (প্রাক স্বাধীনতা পর্ব) / সোনালী মুখোপাধ্যায়- কলকাতা: গাঙচিল, ২০১৪

**Alokmayeeder katha : Bengali periodicals (Pre-Independence Period) edited by women in Bengal / Sonali Mukhopadhyay.-Kolkata : Gangchil, 2014**

**সারসংক্ষেপ:** স্বাধীনতার পূর্বে অবিভক্ত বঙ্গদেশে মহিলাদের দ্বারা সম্পাদিত বাংলা পত্রপত্রিকা সম্পর্কে বিস্তারিত আলোচনা করা হয়েছে এই প্রবন্ধে।

**Abstract:** This essay describes about the Bengali periodicals edited by women in Bengal in Pre-Independence Period

**বিশ্লেষণ :** সাময়িক পত্র = বিষয়

বাংলা সাময়িক পত্র	=	সত্তা
সম্পাদনা	=	ক্রিয়া
নারী (দ্বারা)	=	প্রতিনিধি ধারণা
প্রাক স্বাধীনতা যুগ	=	'সময়' বিশেষক
বঙ্গদেশ (অবিভক্ত)	=	'স্থান' বিশেষক
<b>Analysis:</b> Periodical	=	Subject
Bengali periodical	=	Entity
Editing	=	Action
Women (by)	=	Agent
Pre-Independence Period	=	'Time' Qualifier
Bangadesh(undivided)	=	'Space' Qualifier

(See Rule no. 6.1, 6.2.1, 6.2.3 and 6.6)

### নির্দিষ্ট বিষয় সংলেখ

বাংলা সাময়িক পত্র । সম্পাদনা- নারী (দ্বারা), প্রাক স্বাধীনতা যুগ, বঙ্গদেশ(অবিভক্ত)

### Specific Subject Entry

Bengali periodical | Editing – (by) Women, Pre-Independence Period, Bangadesh(undivided)

### বর্ণানুক্রমিক বিষয় সংলেখ বিন্যাস:

নারী (দ্বারা), প্রাক স্বাধীনতা যুগ, বঙ্গদেশ(অবিভক্ত) / বাংলা সাময়িক পত্র। সম্পাদনা  
প্রাক স্বাধীনতা যুগ, বঙ্গদেশ(অবিভক্ত) / বাংলা সাময়িক পত্র। সম্পাদনা – নারী (দ্বারা)  
বঙ্গদেশ(অবিভক্ত) / বাংলা সাময়িক পত্র । সম্পাদনা – নারী (দ্বারা), প্রাক স্বাধীনতা যুগ  
বাংলা সাময়িক পত্র । সম্পাদনা – নারী (দ্বারা), প্রাক স্বাধীনতা যুগ, বঙ্গদেশ(অবিভক্ত)  
মহিলা **আরও দেখুন** নারী  
সম্পাদনা – নারী (দ্বারা), প্রাক স্বাধীনতা যুগ, বঙ্গদেশ(অবিভক্ত) / বাংলা সাময়িক পত্র  
সাময়িক পত্র **আরও দেখুন** বাংলা সাময়িক পত্র

### Alphabetical Subject Index Entries:

Bangadesh(undivided) / Bengali periodical | Editing – (by) Women, Pre-Independence Period  
Bengali periodical | Editing – (by) Women, Pre-Independence Period, Bangadesh(undivided)  
Editing – (by) Women, Pre-Independence Period, Bangadesh(undivided) / Bengali periodical  
Periodical **see also** Bengali periodical  
Pre-Independence Period, Bangadesh(undivided) / Bengali periodical | Editing – (by) Women  
Women, Pre-Independence Period, Bangladesh(undivided) / Bengali periodical | Editing – (by)

## VII. Conclusion

It is concluded that formulation of rules are required for vocabulary control in Bengali publication. It is needed for maintaining the uniformity and consistency for constructing the subject indexing of Bengali publications in different libraries in India. It is to be useful for effective information retrieval of Bengali documents by subject.

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