Morphological Processes in English and Sanskrit: A Cross-Linguistic Study

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Abstract

Morphology is the sub-discipline of linguistics. It is the study of morphemes and their arrangement in forming words. The present study attempts to identify and compare the morphological processes in English and Sanskrit. This study was based on qualitative methods and the selected documents of both languages were used as the research tools for this study. The results reveal that the English suffixes such as -age, -al,-ation,-ism, -ment, -ant, -ent, -er, and Sanskrit suffixes such as -ya/-eya, -man, -na, -an, -a, -ti -a, -ana, -ah, -ti, -tri, -aka, -man, are nominal derivational suffixes. The plural morpheme -s, and genitive morpheme -'s are English nominal inflectional morphemes whereas there are twenty-one inflectional suffixes (sup) (su, au, jas) in Sanskrit. Similarly, English verbal inflectional morphemes are -ed, -en, and -ing whereas there are eighteen verbal inflectional suffixes (tin) (tip, tas, jhi,) in Sanskrit. Furthermore, there are compound nouns (breakfast), verbs (fine tune), adjectives (open-ended), and adverbs (uprightly) in English. In contrast, there are only two special sub-class of exocentric compounds in Sanskrit, namely numerative (dvigu), and adverbials (avyayībhāva). As a comparative study, it can help identify the root knowledge of both languages as languages are related to each other.
Keywords: inflectional and derivational morphemes, nominal, and verbal morphology, compounding, linguistic typology

Introduction

Morphology is the center of linguistics. It deals with word formation, analysis, and generation. It studies the ways new words are formed in the languages and the way word forms are varied depending on how they are used in sentences (Lieber, 2009). It studies form-meaning relationships between lexical units and their arrangement in forming words (Hamawand, 2009). It studies the combination of morphemes as elements of words. Words are the interface between phonology, syntax, and semantics. Every language has words. Language is the 'basic building block' in forming complex words. They are considered the fundamental building blocks of language (O'Grady et al., 1997). They are the smallest free form in a language (Akmajian et al., 2012; Bloomfield, 1933). It is, therefore, concerned with how words are formed or created in a language from smaller units systematically. Morphology is, therefore, the study of the internal structure of words (Akmajian et al., 2012, Greenbaum, 2006, Haspelmath & Sims, 2010; Katamba, 1983).

Morphology is the study of morphemes, the smallest significant units of grammar (Todd*,* 1987). It deals with the morphemes and their arrangement to form words (Nida, 1949). It includes the stocks of segmental morphemes and how words are formed out of them (Hockett, 1958). Morphology also deals with prefixes, suffixes, and compounding to form words. It is the branch of grammar that studies the structure or forms of words, primarily through morpheme constructs (Crystal, 2003). It is concerned with the structure of words and with relationships between words involving the morphemes (Carstairs-McCarthy, 2002). It also deals with what morphemes are and how they operate in the structure of a word.

Morphology is the construction of resultant forms which are either bound forms or words. It includes the constructions of words and parts of words (Bloomfield, 1996). Languages differ more in morphology than in syntax. Morphology, therefore, studies the grammar of words and their internal structure, including minimal forms, inflections, and derivations.

The two major branches of morphology are word formation: derivational morphology and inflectional morphology. Derivation refers to the creation of new words whereas inflection deals with the grammatical forms of the same word. In this light, Booij (2014) claims, "Inflection is concerned with the expression of morphosyntactic properties whereas word formation deals with the creation of new words by various morphological mechanisms such as compounding, affixation, truncation, and segmental and tonal alternation" (p.1). Morphology is one of the sub-disciplines of linguistics that helps in understanding how words are formed and how they relate to each other. Sanskrit language focuses on morphology in comparison to English as English is a syntax-based whereas Sanskrit is a morphology-based language.

Literature Review and Research Gaps

Morphology, the study of word formation and structure, is a key area in linguistics. It examines how words are formed from morphemes, the smallest units of meaning. Although this study aims to identify morphological patterns in English, and Sanskrit, I did not find any comprehensive morphological studies from comparative perspectives between English and Sanskrit. However, I have attempted to present some morphological studies in different languages. In this context, Prasad (1988) studied the morphology of Nepali, Maithili, and Hindi under formative affixes, nominal deflections, pronominal declensions, numerals, and verbal conjugations. A history of the cardinal numbers and certain pronouns was dealt afresh, and comparative observations were made. The tense of those languages was classified with a novel approach. A separate short note on the historical development of the compound verbs was enclosed along with the list of combinations found in the languages.

Correspondingly, Poudel (2005) analyzed tense, aspect, and modality in Nepali and Manipuri applying the tools from a functional typological grammar approach. He focused not only on derivational and inflectional verbal groups that contribute to the meaning of tense, aspect, and modality but also on different types of lexical verbs that have different semantic effects regarding the meaning of these categories.

Conversely, Jha et al. (2007) analyzed only Sanskrit sentences and their basic categories. They focused that Sanskrit nouns are inflected with seven case markers in three numbers. They also categorized nouns under primary *(kṛdanta)*, secondary *(taddhitānta)*, feminine forms *(stripratyayānta)*, and compounds. They further classified Sanskrit *subanta* into *avaya subanta* , *basic subanta*, *samasata subanta, kṛdanta subanta.* The primary affixes called *krt* are added to verbs to derive substantives, adjectives or indeclinable, *taddhitānta subanta* (secondary derived nouns). The secondary affixes called 'tadhita' derive secondary nouns from primary nouns, and *stripratyayānta subanta* (feminine derived nouns) Sanskrit had eight feminine suffixes.

Likewise, Tumbahang (2007) analyzed the phonology, morphology, and syntax of *Chatthare Limbu*. He collected the mythological stories found in that language. Then he translated that oral data into English. Tumbahang concluded that there were 20 consonants and seven vowels. That language had all phonological processes. Pronouns were divided into personal and interrogative and adverbs by affixation, and all the adjectives were made by verbs. Likewise, Tapaswi, Jain, and Chourey (2012) applied morphological analysis to the categories of nouns, pronouns, adjectives, adverbs, postpositions, conjunctions, and interjections. The paradigms of postpositions were created based on their linguistic behavior. They included case markers *(vibhakti pratyaya)* and a class of post positions called

shabdayogi avyay. The latter were attached to singular and plural forms of nouns and pronouns. Some *shabdayogi avyays* exhibit specific behavior.

Yadhav (2015) described the verbal system of Sirhali Tharu language as dealing with some traits such as agreement morphology, valence-changing morphology, tense-aspect system, mood, non-finite forms, and negativization. He found that Tharu language possesses the past tense marker suffix *-l* for person subjects for singular and plural. The present tense is also marked with *-ci* and *-ch*. He also found that this language has four aspects: perfective, perfect, pluperfect, and imperative. Also, Khatiwada (2016) described and analyzed the Dhimal morphosyntax. Most of the examples presented in his study are drawn from naturally occurring texts. Different tools like digital audio recorders, audio editors, and textbook software were utilized to obtain and process the data. He found that Dhimal exhibits morphologically marked past, present, and future tenses. Morphological aspects are categorized into perfective and imperfective. Dhimal employs nominative and accusative case marking. Personal pronouns show three persons and three genders distinction.

The literature reveals that there have been many morphological studies in various languages descriptively or analytically. However, no comprehensive morphological studies have been carried out so far from a comparative perspective. So, the researcher is keenly interested in studying both languages from a morphological point of view. Analyzing morphology in both languages from comparative point of view is the main problem of this study and the following are the specific problems:

1. What are the morphological processes in English and Sanskrit ?
2. What are the similarities and differences in the morphological system of those languages?

Methodology

The present study was the document study, a part of qualitative research. The aim of qualitative research often involves the provision of careful and detailed descriptions as opposed to the quantification of data through measurements, frequencies, scores and findings (Mackay & Gass, 2005). Qualitative research is a logic that links data to be collected to the initial questions of study (Yin, 2009). Inductive reasoning is most closely associated with qualitative approaches to research, which collect and summarize the data using primarily narrative or verbal methods: observation, interview, questionnaires, documents, texts, researchers' impressions, reactions, records, and films (Lodico et al, 2006; Strauss & Cordin, 1998). Similarly, the document is a written, drawn, presented or memorized representation of thought, and document analysis is a systematic procedure for reviewing or evaluating documents, both printed and electronic. Like other analytical methods in qualitative research, document analysis requires that data can be examined and interpreted in order to elicit meaning, gain understanding and develop empirical knowledge (Cordin & Strauss, 2008). Being a document study, the researcher collected the related books, journal articles, and previous theses both in English and Sanskrit languages and compared and analyzed them logically and systematically.

Results and Discussion

English and Sanskrit are two members of the same language family, i.e. Indo-European. English is an inflected language. There are various morphological processes such as inflection, derivation, and compounding in English and Sanskrit. These processes were studied under nominal, verbal, and compounding morphology as described below.

Nominal morphology

In nominal morphology, morphemes are attached to the end of nouns and adjectives and agree in case and gender. English has two numbers: singular and plural, three genders: masculine, feminine, and neuter and eight cases: nominative, accusative, instrumental, dative, ablative, genitive, locative, and vocative (Cowan, 2008). On the other, Sanskrit has three numbers: singular, dual, and plural, three genders: masculine, feminine, and neuter, and eight

cases similar to the English language. Both English and Sanskrit languages have the following derivational and inflectional morphemes.

The derivational morphemes such as -*ant* (*informant*), -*ent* (solvent), -*er* (writer), -*ing* (drawing), -*ee* (examinee) are added to a verb to make concrete nouns in English whereas -*a* (*jayah*), -*ana* (*gamanam*), -*ah* (*tapah*), -*ti* (*matih*), -*tri* (*netri*), -*aka* (*nāyakah*), -*man* (*karman*) are used to form such nouns in Sanskrit (Muller, 2016; Williams, 2005).Similarly, English suffixes such as -*age* (baggage*), -*al* (arrival*), -*ation* (collaboration),-*ion* (objection*), -*ing* (gardening*), -*ism* (communism*), -*ment* (development*) are added to form abstract nouns. Some other adjective suffixes such as -*ancy* (truncy*), -*ency* (decency*), -*babble* (psychobabble*), -*ful* (handful*), -*hood* (boyhood*), -*line* (chatline*), -*thon* (talkathon) are added to a verb to form abstract nouns. Moreover, the adjectival suffixes are such as -*ness* (happiness*), -*ity* (publicity*), -*al* (arrival*),-*ity* (capability*) are used to make abstract nouns(Greenbaum, 2006) . On the other hand, the Sanskrit suffixes such as -*ya*/*eya* (*viryam*/ *sauryam*), -*man* (*kāliman*),-*na* (*praṣna*), -*am* (*vācanam*), -*a* (*jayah*), -*ti* (*gatih*), *athu* (*vepathu*) are used to make abstract nouns (Giri, 2016; Muller, 2016; Williams, 2005).

English nominal inflectional morphology is formed by adding plural morpheme-*s* (cars, books), and genitive morpheme-'s (Ram's book, John's diary). On the contrary, there is a very complex nominal morphological system in Sanskrit. There are twenty one inflectional suffixes attached to the nominal base of seven cases, three numbers, and three genders as given: *[su, au, jas][am, auṭ, śas] [tā, bhyām, bhis] [ṅe, bhyām, bhyas] [ṅasi, bhyām, bhyas] [ṅas, os ,ām] [ṅi , os, sup]* (Goldman & Goldman, 2011; Muller, 2016; Williams, 2005).

Gradable and non-gradable derivational suffixes are found in English. The suffixes such as -*ful* (successful, pitiful), -*y* (hairy, wealthy), -*ible*/*able* (inevitable, visible) are gradable adjective suffixes in English whereas -*ed* (pointed, wooded), -less (restless, childless), -*al*/*ial*/*ical* (accidental, editorial, professorial) are non-gradable adjectives (Carter & Mac Carthy, 2006; Greenbaum, 2006). On the other, they are limited to Sanskrit. They are -*a* (*śadṛśa*), -*isṇu* (*sahisṇu*), -*uka* (*kāuka*), -*war* (*naswar*), -*ura* (*vidura*), -*vin* (*medāvin*), -*in* (*dhanin*), -*mat* (*dhimat*). Degree of comparative adjectives in English take the forms -*er* (smaller) and -*est* (smallest) or *more* (more beautiful) and *most* (the most beautiful) or *less* (significant) or the *least* (significant) whereas in Sanskrit *tara* (*puntyatara*) and *tama* (*punyatama*) , *īyas* and *īṣṭha (baliyas, baliṣṭha)* are used for comparative and superlative degree respectively (Muller, 2016; Williams, 2005).

The cardinal numbers such as one, two, three,… and the ordinal numbers such as the first, second, third… are not infected with gender and case system in English. However, Sanskrit cardinal numbers such as *eka*, *dvi*, *tri*, *catur*…and ordinal numbers such as *prathamah*, *dvitīyah*, *tṛtiyah*,…are declined with numbers, gender, and case termination (Williams, 2005). Similarly, English has the first (I, we), second (you), and third (he, she, it, they) person pronouns. Similarly, *he*, *she* and *it* are masculine pronouns, feminine pronouns and neuter pronouns respectively. Similarly, he, she, it , you, they, we, etc. are personal pronouns. These personal pronouns can be grouped into nominative pronouns (I, we, you,), possessive pronouns (our, ours, my), accusative (me, us, you) and reflective (myself, himself, yourself). On the other, Sanskrit personal pronouns *asmad* (I/we), *yusmad* (you) and *tad* (he, she, it) are inflected with three genders, numbers, and case terminations.

English has demonstrative pronouns (this, that, those, these). *This* and *that* are singular pronouns whereas *these* and *those* are plural pronouns. On the other, Sanskrit demonstrative pronouns are *etad* (this), *and adas* (that) which are infected with numbers, genders, and case terminations. Similarly, English relative pronouns (who, which, whom), indefinite pronouns (somebody, someone, anybody, anyone), and pronominal adjectives (all) are inflected with masculine, feminine, and neuter gender, singular and plural numbers and nominative and accusative cases. Nevertheless, Sanskrit relative pronoun *yad* (who or which),

indefinite pronouns *kascit*-(somebody, anybody), and pronominal adjectives such as *sarva* (all), *visva* (all), *ubha* (two) are declined with numbers, genders and case systems.

Verbal Morphology

Verbs are words that describe an action or talk about something that happens. Most verbs are action verbs, used to describe actions (what we do), and events (what happens) while some verbs are state verbs rather than actions (Yule, 2006). Regular complete verbs have four morphological forms: base form, -s form, -ing participle, -en and -ed form (Greenbaum & Quirk, 2008). Verbs appear as part of the sentence's predicate and bear the marks of categories such as tense, mood, voice, person, and number.

There are different types of verbs such as auxiliary, lexical, transitive, intransitive, finite, non-finite, phrasal, prepositional, regular, irregular verbs. Most verbs in English are conjugated with tense, mood, and aspect system whereas Sanskrit verbs are divided into ten classes called *ganas*. They are *bhvādi, adādi, juhotyādi, rudhādi, divādi, svādi, tudādi, rudhādi, tanādi, kṛyādi and curādi gaṇas* (Giri, 2016, Muller, 2016; Williams, 2005)

Traditional grammarians claim that there are twelve tenses in English. However modern grammarians view only two types of morphological tenses: past and non-past. They have put future tense under modal verbs. On the contrary, there are six tenses: present, past perfect, past imperfect, aorist, first future, and second future, and four moods: imperative, potential, benedictive, and conditional in Sanskrit. English inflectional verbs are formed by adding different suffixes such as third person singular- *s (*walks*)*, progressive form-*ing (*walking*)*, participle -*ed (*walked*)*, -past form -*ed* (waked*)* (Carter & Mac Carthy, 2006). But all Sanskrit verbs- primitive or derived- use *tiṇ* termination to make a new word. They are eighteen in number and conjugated with person, number, tense, mood, and voice. They are grouped under *parasmaipadi [tip, tas, jhi] [sip, thas, tha] [mip, vas, mas]* and *ātmanepadi [a, ātāam, jha], [thas, āthām, dhwam], [it, vahin, mahin]* (Macdonell, 2007; Muller, 2016).

The imperfect tense uses an augment (*a*-prefixed element). Potential and imperative follow similar affixes to the present tense. The reduplicated perfect employs a certain rule for reduplication i.e. the first syllable of the root is reduplicated (e.g. *budh-bu-budh*). There are two kinds of aorists. The first aorist is formed by adding a sibilant between root and termination, and the second aorist is formed by adding the termination to the root. The simple future is formed by adding -*'sya'* or -*'isya'* suffix to the root. The second future is found only in *parasmaipada*. The conditional mood is very similar to the simple future in its formation. In the Benedictive mood, *s* is inserted between *'ya'* and personal inflection. Similarly, the present, imperfect, imperative, and potential passive are formed by adding 'ya' to the root (Muller, 2016).

There are two types of voice systems in English: active and passive. The passive takes the termination of *Ātmanepada* only (e.g. *pā-'drink'-pīyate*) in Sanskrit. Similarly, participles are formed by taking the third person plurals of the present and dropping the final i (e.g. *bhavanti > bhavant, bhavan* (Nom), *bhavantam* (Accu), *bhavantā* (Ins). Similarly, the gerund of the simple verb is formed by adding *tvā* to the root (e.g. *Kṛ-kṛtvā*, -having done).

Some derivative verbs such as causative, desiderative, intensive, and denominal are found in Sanskrit and these verbs are not conjugated with tense, mood, person, or number. So they are called secondary conjugation. The causative verbs are formed by adding i in the final position of the root (e.g. *bhū> bhāvi* and *bhāvayati*- 'he causes to be'). Derivative verbs are formed by reduplication and adding s to the root (e.g. *bhū >* 'to be' *bubhūs* 'to wish to be'. Similarly, intensive verbs are formed by adding *'ya'* to the end (e.g. *bhūbobhīyate*). Finally, denominative verbs are formed by adding *'ya'* to the root (e.g. syena > *synāyate*- he behaves like a hawk (Macdonell, 2007). On the other hand, denominal verbs are made by adding -ise/ize, -ify, -en although there is no proper rule for forming other causatives and intensive verbs in English.

Compound morphology

Compounding is another morphological process of forming a complex structure by combining two or more free morphemes (Bloomfield, 1996; Hamawand, 2009; Zapata, 2007). In English, we generally use free bases to compose compounds (Lieber, 2009). It is somewhat challenging to create new words by perfectly transparently compounding two words (Stockwell & Minkova, 2001).

In English, there are synthetic compounds (e.g. hand washing, dog walker), root compounds (windmill, ice cold), attributive compounds (snail mill, windmill), coordinative compounds (doctor-patient, student-teacher), and subordinative compounds (truck-driver, hard-mixer) (Bauer, 2009). On the other, Sanskrit has *avayībhāva samās* where there is *purba pada pradhana*. It means noun is preceded by an adjective (*adhi- hari*, *upa-kṛṣṇa*), *tatpuruṣ samās* is *uttara pada pradhāna samās* (*rāja puruṣ-* king's man, *hiranya ratha-* a golden car), *karmadhāraya samās* is formed with the combination of adjective and noun (*puṇamāsa-* 'full moon', *ekavira* 'unique hero', *mahavira-* 'great hero'), *dvandva samās* consists of two nouns connected with *ca* -'and' (*mātā ca pitā ca = mātāpitā*, *hari ca kṛṣṇa ca = harikṛṣṇau*). *Bahuvṛi* compounds are the compounds without a head. They are adjectival in nature *(pitambaram yasya = pītāmbarah, nilam kanthya yasya = nīlakanthah)*. In *dwigu samās*, the first member is necessarily numeral (*dwau dalau = dwidalah*) (Burrow, 2016; Mackdonell, 2007; Regmi, 2068; Williams, 2005).

Syntactically, there are also different types of compounds: compound nouns (pick-pocket, breakfast, boyfriend), compound verbs (fine-tune, overlook), compound adjectives (open-ended, cross-modal), compound adverbs (uprightly, cross-modally), and neo-classical compounds (hydro-electric, astronaut) in English (Bauer, 1983, 2009; Lieber, 2009). Moreover, Sanskrit grammarians distinguished two special sub- classes of exocentric compounds, namely numerative (*dvigu*), nouns with numbers as prior members, such as in English, *fortnight*, *sixpence* and adverbials (*avyayībhāva*), adverbs with noun head such as *barefoot*, *bareback* or with noun subordinate, such as *uphill*, *indoors*, *overseas*.

In addition to inflection, derivation, compounding, and reduplication, English has many other processes of word formations such as conversions (a drink- to drink), blends (motel, smog), acronyms (RAM- Random Access Memory), clitics ('s for is, 'm for am), coinage (Xerox, volt, Kodak), clipping (math, exam), borrowing (*homicide* -Latin, *ghee*-Hindi), backformation (baby sitter-baby sit), cross formation (seafare, airfare and spacefare), etc whereas such types of formation cannot be found in Sanskrit.

Conclusion and Implications

Morphology is a process of word formation. It mainly studies prefixes, suffixes, and compounding. The present study compared morphological processes in English and Sanskrit where there are both inflectional and derivational morphemes. The suffixes such as -age, -al,-ation, -ism, -ment, -ant, -ent, -er, in English and the suffixes such as -ya/-eya, -man, -na, -an, -a, -ti -a, -ana, -ah, -ti, -tri, -aka, -man, in Sanskrit are nominal derivational suffixes. The suffixes such as plural morpheme-s, and genitive morpheme -'s are English nominal inflectional morphemes whereas there are twenty-one inflectional morphemes *(su, au, jas, am, aut, sas)* in Sanskrit. English verbal inflectional morphemes are -ed, -en, and -ing whereas there are eighteen verbal inflectional suffixes such as (*tip, tas, jhi, sip, thas, tha*) in Sanskrit. English and Sanskrit words are formed through different processes such as prefixation, suffixation, and compounding. There are different types of compounds in English: compound nouns (pick-pocket, breakfast), compound verbs (fine tune, overlook), compound adjectives (open-ended, cross-modal), compound adverbs (uprightly, cross-modally), and neo-classical compounds (hydro-electric, astronaut). However, there are two special sub- classes of exocentric compounds in Sanskrit, namely numerative (*dvigu*), nouns with number as prior members, such as in English, *fortnight*, *sixpence* and adverbials

(*avyayībhāva*), adverbs with noun head such as *barefoot*, *bareback* or with noun subordinate, such as *uphill*, *indoors*, *overseas.*

The present study is a small scale study. Although it attempts to compare the morphological processes in English and Sanskrit, it does not deal with all aspects of morphology in depth of detail. Other researchers who want to study in this field can carry out in-depth studies in any one field, i.e. nominal, or verbal or compound morphology. Being a comparative study it can help find out root knowledge of both languages as languages are related to each other.

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