CHAPTER 1

Introduction and Background

1.1 Introduction

Language as a means of communication separates human beings from animals and it is always in a state of flux. Again, with time, new ideas, circumstances, and conceptions emerge. As a result, a language acquires many new expressions over time and loses many others. Human beings are facilitated by a limited number of linguistic symbols from which they generate various linguistic expressions to convey their thoughts. This phenomenon causes new linguistic expressions to enter a language. Hockett (1960) defines this characteristic of language as productivity and labelled it as one of the design features of language. According to Hulse (2010), "Productivity is the lifeblood of language, allowing it to remain fertile and dynamic". It is considered as a fundamental characteristic of language which separates human language from the primate language. Productivity, from a linguistic point of view, refers to the unlimited use of language in innovative ways, because of which it is possible to get the infinite number of outputs from a finite number of inputs. This is the reason why people can produce sentences or words they have never heard before. Bauer (2002) says that the language system or grammar that describes the language system is productive because, and to the extent that, the individual processes involved in the system and described in the grammar are themselves productive. Language is said to be productive because of the presence of productive processes in language.

As a part of this mechanism, a reflection of productivity can be observed at the morphological level. When talked about morphological productivity, it correlates with the mechanisms of forming words through different morphological or word-formation processes. Languages have various ways of forming new words which may differ from language to language. Assamese word formation involves processes such as derivation, compounding, blending, coinages, clipping, acronyms, loan words, borrowings, and reduplication. Among these morphological or word formation processes, again, certain word formations may turn out to be more productive than others depending on different fields. For example, derivation is the most productive and widespread process among the other morphological processes in Arabic. (Al-Dalaien 2016). Similarly, affixation is the most productive word-formation process in Modern English. (Domínguez 2013). In

Assamese also, it is one of the most productive processes and the present study deals with the productivity of a few derivational affixes of Assamese which includes both the prefixes and suffixes.

Bauer (2002) states that "within morphology, the important discussions of productivity are individual ways of making words". Affixation is an integral part of the morphological process, which can yield various insights in terms of productivity. From this perspective, morphological productivity is the capacity of morphemes to produce new words or word-forms. The productivity of a morpheme implies how often a morpheme is used in a language. If it is productive then it can be applied naturally in forming new words. New complex words are created by the productive morphemes.

For example: In English,

a) The plural suffix *-s* is a productive morpheme.
b) Past tense marker *-ed* is productive, while past tense forms of verbs created by changing vowels (e.g., sing-sang-sung) is an unproductive pattern.
c) Nominalizing suffix *-ness* is more productive than the suffix *-ity* when attached to adjectives base. (Aronoff 1976, Anshen & Aronoff 1981, Plag 2003).

The morphology of Assamese is an important area to be studied in the light of its productivity feature. The speakers of the language regularly use words that incorporate attestation of certain affixes. When they are asked to combine affixes with bases, they are able to make the appropriate choice. They also have the ability to identify the unusualness and illegitimate attestation in word formations. They are at home with the phenomenon called productivity in language. However, the average speakers are ignorant of it and the rationale behind these unions. They can determine which morphemes work well with a particular base, but they cannot explain why certain morphemes are employed more often than others. It indicates that though human beings are inherently accustomed to the phenomenon of productivity in the process of language learning, they might not be aware of it. Hence, the productivity of language turns out to be a subject of research, as it would address the questions of why some affixes are used only in one place and not in another i.e., why some combinations are considered more legitimate than others and

which morphemes are dominantly used in the language. Identification of these facts would help in the better understanding of the language.

There are two categories of morphemes in the language: bound morphemes and free morphemes. While the free morphemes serve as a base or stem, bound morphemes are majorly utilised to form new words or word-forms. The bound morphemes of the language consist of two types of affixes, prefixes and suffixes. However, when we specifically talk about the productivity of affixes, it invites discussion of two types of affixes available in the language, inflectional and derivational and both are suffixal and prefixal in nature, among which some of the affixes may display greater productivity in terms of producing new words than others. The present study of morphological productivity accounts primarily for the productivity of derivational morphology in Assamese, which would be both qualitative and quantitative.

1.2 About the language:

The language of the study is Assamese; an Indo-Aryan language and a dominant language of the state of Assam of the North-Eastern region of India. In addition, it is considered the lingua franca of the region. The language is also spoken in some parts of Arunachal Pradesh, Meghalaya, Nagaland, Koch Bihar, Bangladesh and Myanmar etc. Listed in the 8th Schedule of the Indian Constitution, this language is one of the twenty-two officially recognized major languages of India.

According to the Language Census 2011, of the total 1,53,11,351 Assamese speakers of India, the number of people who return Assamese as their mother tongue is 1,48,16,414 i.e., only 1.26 percent of the total population of India speaks Assamese. Coming to the state level, as per data, the population of Assam is 31,205,576 of which the total number of Assamese speakers is 15,095,797 i.e., 48.38 percent of the population in Assam considers the language as their first language.[1]

[1] http://www.censusindia.gov.in/2011Census/C-16_25062018_NEW.pdf

https://www.sentinelassam.com/news/assamese-speaking-population-decreasing-alarmingly/

The phonemic inventory of the Assamese language, consisting of eight oral vowel phonemes, three nasalized vowel phonemes, fifteen diphthongs, and twenty-one consonant phonemes, establishes the language's structure. In Assamese, a syllable is made up of one or more phonemes and can either be an entire word or only a component of a longer word. 'Open' and 'closed' syllables are those that finish in vowels or consonants, accordingly. Words can be categorized as monosyllabic, comprising a single syllable, or polysyllabic, comprising multiple syllables. The Assamese language has a phonetic repertoire of 40 consonants and 11 vowels.

1.3 Productivity

1.3.1 Definition

Broadly speaking, productivity in morphology means any word-formation processes that are frequently and actively used in new word creation. The notion of Morphological Productivity is still a debatable topic as different people may view it in different ways (Bauer, 2001). Schultink (Evert and Ludeling 2001) investigated this phenomenon in the Dutch morphology. The notion of Morphological Productivity still invites a lot of discussions as different scholars view it in different ways (Bauer, 2001). It is a widely discussed area in linguistics, noticeably an all-encompassing common definition of Morphological Productivity is yet to be defined. According to Bauer (2003), "Despite its importance, it is poorly understood". Many scholars have defined productivity, highlighting only a few aspects of it. A comprehensive review of the notion of productivity offered by numerous scholars may be found in Bauer (2001).

The essence of these definitions is that to gain productivity status, a linguistic element must enter the process of new word formation. While some linguists, in their definitions of productivity, define that morphological productivity is related to morphological processes or rules, for others, it is the affixes that are productive. Bauer (1983) claims that a productive process is one that can be used synchronically in the production of new word forms. Spenser (1991) says that a morphological rule is productive if it is "regularly and actively used in the creation of totally new words." Similarly, productivity is "the statistical readiness with which an element enters into new

combinations" as stated by Bolinger (1948). Plag (2006) also argues, "The productivity of a new word formation process can be defined as its general potential to be used to create new words and as the degree to which this potential is exploited by the speakers". According to Plag, Dalton-Puffer, C., & Baayen, H (1999), "Productivity is generally loosely defined as the possibility to coin new complex words according to the new word-formation rules of a given language".

A few other definitions, however, reflect that productivity is the property of an affix which is employed in new word creations. Plag (1999) mentions that it is the property of a word-formation process or an affix as he says, "Having scrutinized the different criteria put forward in standard definitions of productivity, it can be stated that this notion boils down to the property of a given word-formation process or affix to be used to derive a new word in a systematic fashion". Aronoff and Anshen (1988) also say, "The extent to which a particular affix is likely to be used in the production of new words in the language. On this view, productivity is a probabilistic continuum that predicts the use of potential words". Similarly, Baayen (2012) opines that type frequency of an affix determines productivity when he says, "morphological productivity is generally used informally to refer to the number of words (the type frequency of an affix) in use in a language community that a rule derives" (as cited in Joandi 2012). As per these definitions, the more an affix is utilized in new word formation, the more productive it is.

The fundamental idea behind these definitions is that morphological processes that are characterized as productive have the capacity to create new words in the language. The productive processes in a language produce new complex words. Again, many times the creation of new words is referred to using affixes or the possibility of using an affix in word creation. The productivity of an affix or a morpheme implies how frequently a language uses a particular morpheme and one that is productive can be applied naturally in building new words. The fact that most productivity evaluations are carried out synchronously is an important component of these definitions of productivity that has to be emphasized. Thus, two synchronic studies involving two temporal points for comparison are necessary for the diachronic analysis of productivity.

1.3.2 Qualitative and Quantitative Perspective

The study of productivity can be done from two theoretical perspectives- qualitative (Baayen 1992) and quantitative (Baayen 1992; Baayen and Lieber 1991; Baayen 2001). Qualitative analysis means understanding ideas, thoughts, or experiences. It is descriptive, language-related, and interpretation-based. On the other hand, quantitative analysis provides us with how many, how much, or how frequently something occurs in terms of measurement. In other words, quantitative analysis is dealt with measurement of productivity that involves a statistical calculation of the rates at which an affix or morphological process occurs in new words formation. While quantitative study provides the frequency of a particular affix and how productive it is, qualitative study addresses the 'why' behind this phenomenon. Whether productivity is a quantitative or qualitative notion, it has been discussed by many earlier scholars (Plag 2003). Baayen (1992) refers to the qualitative aspect of productivity. Again, Bauer (2001) divides the phenomenon of productivity into two distinct approaches: qualitative and quantitative view. Bolinger's definition of productivity is the starting point for quantitative measures of productivity (Plag 2003). A range of quantitative measures are exclusively proposed by Baayen and co. which invariably invites attention to the quantitative aspects of productivity (Baayen 1992, Baayen and Lieber 1991, Baayen 2001). These measurements have suggested calculating the likelihood of discovering a new word created by a specific morphological process in a text after a specific amount of text has been sampled.

1.3.3 Significance of the study

As we have discussed above, productivity is one of the design features of language, studies of which may yield important insights into it. The ability to create new words and keep them in one's mental lexicon is one of the most basic aspects of human nature. However, due to the limitations of the human brain, it is impossible for anyone to memorize every word in a language. Additionally, it is not humanly possible to predict the words that will be developed in the future. Although there is no restriction on how many words can be formed, fortunately, there are a limited number of patterns that can be used to do so. Because of this, we instead repeat the patterns to generate words in our minds rather than all the words. Productivity studies aid in identifying the patterns used

in the formation of new words and can aid in forecasting the structure of vocabulary in the future.

Again, productivity study can significantly contribute to the advancement of computational modeling, including the building of programs for speech synthesis, machine translation, and other similar applications (Evert and Ludeling 2001). The development of these applications necessitates the parsing of numerous unseen texts and the analysis of novel words. The study of morphological productivity enables us to identify the patterns that can be created and supplied to computers because languages lack a finite lexicon.

The study of productivity is beneficial from a pedagogical point of view as well. It assists second language learners in the process of acquisition as well as first language learners in improving their understanding of their native tongue.

1.4 Review of Literature

Though extensive work on morphological productivity both from qualitative and quantitative perspectives has been done extensively on many global languages, especially on Indo-European languages, limited cases of such works are available in the context of Indian languages. When narrowed down to Assamese, works are even smaller.

As mentioned, major works on productivity can be found in many European languages. These works are primarily done through three established approaches- dictionary and intuition-based approach, corpus-based approach, and psycholinguistic approach. A few prominent scholars have initiated the way for further study in the morphological study for upcoming linguists and researchers (Aronoff 1976; Anshen & Aronoff 1989; Baayen 1989, 1992, 1994; Bauer 1992, 2001; Baayen & Lieber 1991; Baayen & Renouf 1996; Plag 1999, 2003, etc.) by developing theories and ideas, formulated measuring methods and addressed the issues concerning morphological productivity. A detailed discussion on the issues and notions of morphological productivity by several scholars can be found in Bauer (2001). However, the earlier works of productivity study were mostly dictionary and intuition based., which was later

considered an archaic method. Works of Zimmer (1964), Marchand (1969), Funk (1971), Aronoff (1976) can be cited in this regard, as they adopted this approach for their studies.

Gradually, a huge rise in the use of corpora became prominent in the 1990s, when Baayen and his collaborators developed a few statistical measuring methods. They formulated this corpora-centric method to study the issue of morphological productivity empirically and it brought a huge change in the path of morphological study quantitatively.

In the parallel era, many linguists tried to look at the issue of productivity from a psycholinguistic perspective. The focus of such an approach was to derive results from what the speakers have to say in it, i.e., it directly involves the speaker's choice or decision than any other sources. Thus, it helps the researchers of this approach to get access to the cognitive understanding of the speakers. The psycholinguistic approach makes use of various methods including LDT (lexical Decision Task), elimination test etc. Baldi et al (1985), Frauender and Schreuder (1992), Schreuder and Baayen (1994) have attempted to study morphological productivity adopting this approach.

However, studies focusing exclusively on morphological productivity from a quantitative standpoint are rare in the setting of Indian languages, although a few qualitative discussions can be found on the issue of productivity. The use of corpora can be noticed in a few works, but again that has been used for qualitative purposes, statistical examination on the same is yet to be done.

Khan (2013), in his doctoral dissertation "Word-formation in Urdu: A Linguistic Investigation of Productivity", analyses the structures of the *Unani medicine* names through two main morphological processes blending and compounding. He finds that compounding is more productive than blending while creating the words of Unani medicines and among the compounding, endocentric compounding are the highest productive formations and appositional compounds have the least productivity. Another PhD thesis, *Inflectional and Derivational Morphology of Arabic in Mental Lexicon* by Al-Dalaien, O. A. R (2016) discusses productivity to inspect the process of forming complex words in the mental lexicon. Both studies have utilised the available corpus of

Urdu and data collected from native speakers. Shafique, Shahbaz, and Ahmed (2019) in the paper, "The Productivity of Urdu Affixes in Newspaper: A Corpus-driven Research", discuss the productivity of suffixes and prefixes based on their functionality. It adopts the corpus-based approach to describe the productivity of the suffixes through a qualitative descriptive method. Another paper based on qualitative approach akin to the preceding one, "Productivity of Verb Stems and Inflections in Bangla-speaking Children" authored by Sanjana and Sultana (2019), discusses the nature of productivity in Bangla-speaking children aged 2 to 4 in acquiring verb inflections. Rahman and Sanjana (2020) in the paper "Bangla Tense Inflections Productivity among Pre-school Children" finds twenty nine productive morphological verb inflections for eight tenses, it finds that productivity increases as the age of the children increases. Data are collected for both research work using elicitation production methods. Waqar and Hussain (2021) in "Productivity Patterns in Morphology: A Comparison of English and Urdu Negative Prefixes attached to Inherited and Borrowed Roots", investigate through a qualitative study, the etymology of a few English and Urdu negative prefixes and their morphological pattern of antonym formation. These specific publications have attempted to address the issue of productivity in various Indian languages; nevertheless, they are all limited to a qualitative investigation.

Studies of this nature are particularly rarer when it comes to Assamese. Not only are there no quantitative statistical studies, but there is also remarkably few qualitative research. As mentioned earlier, a lack of suitable resources is considered a probable reason for such gaps in the study.

Kakati (1995), in his pioneering work "Assamese, its Formation and Development", elaborates on a large number of derivational affixes, which he mentions as formative suffixes. He describes their etymology, extensions as well as what they indicate. However, he has not raised the issue of productivity for these affixes in his work.

Deka, K. S. (2015 ed) in *Byakaran: Pracya aro Pasatya* traces the history and development of Assamese grammar and Linguistics. The book is undoubtedly a helpful resource for obtaining a chronological overview of the available works on Assamese

throughout the time, though he has not discussed the structural description of the language. From this book, we are informed that in Assamese, the trend of studying the language from scientific point of view has started just after the eminent grammarians Golokchandra Goswami, Promod Chandra Bhattacharya and Upendranath Goswami, when they were sent to Deccan College of Pune by Gauhati University in 1954. Succeeding this, many grammarians and linguists endeavoured to open the door of language study in a non-traditional way.

Most of the works produced by the eminent scholars have tried to reflect upon the structural explanation of the language. Morol (1974) in *Asamiya Byakaran Jyoti;* Bora (2009) in *Bahal Byakaran*; Goswami (2012, 2015) in the books *Asamiya Byakarana Prabesh and Asamiya Byakaranar Moulik Bisar*; Hakacham's (2015) *Asamiya Rupatvattar Moulik Bisar;* all of them tried to describe the language in the best possible ways by discussing its phonological, morphological and syntactic features; indeed, by apprehending various explanations. Surprisingly, in none of these texts, productivity of the language at any level has been discussed. In the book, *Asamiya Byakaranar Moulik Bisar*, Goswami talks about the productivity of inflectional morphemes. He states that inflectional morphemes are more productive than derivational morphemes. Haspelmath and Sims also agrees with this aspect, as he says (2013), "it is assumed that inflectional processes are fully productive, whereas derivational processes are characterized by varying degrees of productivity, with the majority not being fully productive". However, no further discussion is continued regarding this aspect in Goswami (2015). From the literature that is currently available, we discovered that morphological studies have not yet been the subject of a measure-based investigation, which led us to ponder this area and address this gap in literature.

1.5 An overview of the affixes

1.5.1 Etymological Review

The various affixes of Assamese have different functions and roles. Several earlier linguists and grammarians have done studies on the affixes of Assamese. Though there is a general agreement in the literature that the two types of affixes are identified for

the function of derivation and inflection; while they discuss these affixes, their opinions on the distribution of affixes, terminologies, their role, and function differ slightly in the following ways.

Many linguists want to say that only the derivational suffixes are *pratyaya* (Morol, 1974; Patgiri, 1999; Borah, 2009; Deka and Deka, 2009;), they view *upasarga* 'prefix' as different kinds of affix that have only semantic relevance, i.e., they only change the meaning of a word. It is not found whether they consider *upasarga* as derivational affixes or not. It is because, in every discussion on affixes or derivational morphology, they only talk about the *pratyaya* as the derivational suffix, which helps in the creation of new words. But some linguists place both *upasarga* 'prefix' and *anusarga* or *parasarga* 'suffix' under *pratyaya* (Goswami, 1987). For them, *pratyaya* means derivative and unlike the previous linguists, they opine that *upasarga* is also a derivative marker. Again, according to Goswami (1981), *pratyaya* are bound morphemes, hence all the derivatives and inflective are considered as *pratyaya*. *Pratyaya* includes both *para pratyaya* 'suffix' and *purva pratyaya* 'prefix'. Bora (2006) considers *sarga* and *pratyaya* are equivalent to affix which covers both inflectives and derivatives.

The linguists, who view *pratyaya* as derivational suffix only, generally do not consider *anusarga* or *parasarga* 'suffix' and *upasarga* 'prefix' as the derivational affix. Instead, by the word *anusarga,* they talk about the emphasis markers of the language which do not create new words. On the other hand, some linguists prefer to consider that *pratyaya* are 'suffix' and both *upasarga* 'prefix' and *pratyaya* 'suffix' are part of derivational morphology.

However, while talking about *parasarga* 'suffix' and *upasarga* 'prefix' in Assamese, it does not include *bivakti* 'inflective', though they are suffixal. It means, contrary to English, with the word 'suffix', it is meant that any affix that comes after a root or base, whether it is a derivational marker or inflectional marker is considered a suffix. But in Assamese, affixes that change the form of a word are called *bivakti* and except the negative marker *na-* all others are suffixal, though it is mentioned nowhere

explicitly. In Assamese, the two terms, *anusarga* 'suffix' and *upasarga* 'prefix' imply only the non-inflected forms.

On the other hand, there is a general agreement on the term *bivakti*. Linguists and scholars (Morol, 1974; Goswami, 2012 and 2015; Patgiri, 1999; Bora, 2006; Bora, 2009;) agree upon the markers that can be considered as *bivakti*. The two primary *bivakti* 'inflectional markers' of Assamese are:

a) The noun inflective
    i. Case markers
    ii. Person markers
b) The verbal inflective
    i. Person agreement markers
    ii. Time indicative markers

Besides these two, other affixes which are identified as inflectional morpheme by a few linguists (Goswami, 1987 and 2000; Goswami, 1981) are:

c) Infinites
d) Emphatic markers
e) Plural markers
f) Definite markers
g) Indefinite markers
h) Causative markers

In addition to the above markers, Goswami (1981) says that the feminine markers and *kridanta pratyaya* are also inflective. However, by observing the characteristics of these morphemes, it is seen that they are unlikely to be considered as inflective.

With these opinions in mind, and having investigated the nature of Assamese affixes, we may now classify them in this manner to reach a point of agreement. Any bound morpheme would be considered as *sarga* and *sarga* can be divided into two categories. From a functional point of view, it can be divided into two categories: derivational morphemes i.e., *pratyaya* and inflectional morphemes i.e., *bivakti*. From the

positional point of affixes, both functional categories can be divided into *upasarga* 'prefix' and *anusarga* 'suffix'.

The prime significance of prefixes lies in their semantic relevance (Aronoff, 1976), because when a prefix is attached to a base or stem, it adds a particular sense to the original word. However, it does not change the class of a word. In Assamese, there are many prefixes whose meaning is not restricted only to one sense. A prefix may indicate various senses when it is attached to different bases. In that situation, meaning is decodable only by looking into the resulting word.

For example, *bi*-: *bipɔth* ← *bi*+ *pɔt*^{h}
Wrong way pre + way
bik^{h}*jat* ← *bi* + *k*^{h}*jat*
famous pre+noted

While in the first word *bi*- indicates 'bad or wrong' path, in the second word it simply intensifies the sense of 'famous'. The same prefix implies two different senses in two different contexts. Hence, the meaning is defined contextually in certain instances.

In traditional grammar, the derivational suffixes of Assamese are divided into two categories, primary suffixes and secondary suffixes. The suffixes which are attached to verbal roots are considered as primary suffix '*krit pratyaya*', such as *randh* 'to cook'(Noun) + *ɔni* = *randhɔni* 'cook'(Noun) and the suffixes which are attached to non-verbal roots are called as secondary suffixes *'tadhit pratyaya'*, for example, *k*^{h}*eti* 'field' (Noun) + *ɔk* = *k*^{h}*tijɔk* 'Farmer'(Noun). However, this criterion would not be taken into consideration as a basis during data collecting and tabulation.

Prefixes and suffixes in Assamese are structured such that they always end and begin with a vowel sound, respectively. If neither the prefix nor the suffix end or begin with a vowel sound, then it is certain that the base word begins and ends with a vowel sound.

For example: *d*^{h}*an* + *ɔni* → *d*^{h}*anɔni*
Paddy+ ɔni paddy field

bɔrua + *ni* → *bɔruani*

surname + ni→Mrs. Baruah *ɔpɔ* + *man* → *ɔpɔman*
ɔpɔ + respect disrespect

1.5.2 Selected affixes and the reason behind choosing them

Before delving into the selected affixes of Assamese, we would like to state the general concepts that characterize a linguistic element as an affix, suffix, or prefix. Morphemes known as affixes are added to a base or root to create new words that does not stand as a word on its own. A suffix is an affix that is attached to an end of a base or root. On the other hand, a prefix is an affix attached at the beginning of a word, base, or root.

Though the exact total number of derivational suffixes in Assamese is not documented anywhere, from our preliminary investigation we have found that the number of suffixes is considerably higher than the number of prefixes in the language. Almost all the linguistics grammatical resources record the number of prefixes as twenty which includes both Sanskrit and Assamese prefixes. On the other hand, in the case of suffixes, our approximate count would be more than forty in both the Assamese and Sanskrit categories separately (Patgiri 1999, Morol, Deka and Deka 2009). However, it is certain that not all the Affixes can equally be productive and some inevitably would be more productive than others.

For this study, a few prefixes and suffixes that are frequently used in the word-formation process are taken into consideration. We have selected these *six* commonly used negative prefixes from the small pool of prefixes in the language that may be solely categorized as negative and *fifteen* nominal and adjectival suffixes. The suffixes are selected following random sampling method. The selected prefixes are-

ɔ- অ-	***ɔ****xad^{h}u* ‘dishonest’, ***ɔ****rini* ‘free from debt’
ɔpɔ- অপ-	***ɔpɔ****man* ‘disrespect’ ***ɔpɔ****karɔk* ‘harmful’
dur- দুৰ-	***dur****gɔm* ‘difficult to reach or access’, ***dur****zɔn* ‘a wicked person’
ku- কু-	***ku****p^{h}ɔl* ‘evil consequences’, ***ku****pɔt^{h}* ‘a wrong path’
ni- নি-	***ni****sintɔ* ‘free from thoughts or anxiety’, ***ni****laz* ‘shameless’
bi- বি-	***bi****kɔrxɔn* ‘a push in the opposite direction’, ***bi****dex* ‘foreign, abroad’

The selected suffixes are:

-ɔk -অক	*pat^{h}**ɔk*** ‘reader’, *xɔtɔ**k*** ‘hundred’
-ɔn -অন	*k^{h}awɔ**n*** ‘the act of eating’, *kɔmpɔ**n*** ‘trembling, shaking’
-ɔna -অনা	*g^{h}ɔtɔ**na*** ‘an accident’, *k^{h}elɔ**na*** ‘toy, playing instrument’
-ɔti -অতি	*bowɔ**ti*** ‘flowing’, *namɔ**ti*** ‘one who sings song’
-ɔni- অনী	*rowɔ**ni*** ‘reaper’, *bowɔ**ni*** ‘weaver’
-ɔnija/ -ɔnia -অনীয়া	*pohɔ**nija*** ‘domestic’, *bilɔ**nija*** ‘distributor’
-ɔruwa/-*ɔrua* -অৰুৱা	*batɔr**uwa*** ‘pedestrian’, *hatɔr**uwa*** ‘hat
-al -আল	*mɔŋɔh**al*** ‘fleshy’, *tezal* ‘bloody’
-alu -আলু	*dɔj**alu*** ‘kind’, *krip**alu*** ‘generous’
-aru -আৰু	*zuz**aru*** ‘fighter’, *dub**aru*** ‘diver’
ami -আমি	*t^{h}ɔg**ami*** ‘cheater’, *gor**ami*** ‘orthodox’
-ahi -আহি	*sɔl**ahi*** ‘deceitful’, *mɔd**ahi*** ‘alcoholic’
-ija/-ia -ইয়া	*kumɔl**ija*** ‘not fully grown’, *sɔhɔr**ija*** ‘living in a town’
-ua/-uwa -ওৱা/-উৱা	*g^{h}ɔr**ua*** ‘homely, domestic’, *xar**uwa*** ‘fertile’
-ual/ -uwal -উৱাল	*dak**uwal*** ‘postman’, *pah**uwal*** ‘plumpy’

1.6 Approaches to the study

Investigation into measuring morphological productivity, both in theoretical and descriptive frameworks, based on Indian languages is still rare. In the current scenario, some of the advanced and well-documented linguistic approaches such as corpus-based approach and psycholinguistic methods etc. are being regarded as the best ways to study productivity. For this study we have adopted both the corpus-driven approach and dictionary-based approach.

1.6.1 Dictionary-based method:

A number of linguists, notably Bolozky (1999) and Plag (1999), promote the usefulness of dictionaries in measuring productivity. The dictionary-based approach is suitable for examining diachronic productivity of affixes. In languages like English, which have the easy availability of resources like etymological dictionaries or other resources in the digital platforms, it has been easier to trace the productivity of affixes throughout the ages or centuries along with their first entry in the language. However, as we know, in a dictionary, entries of lexical items mostly depend on the lexicographer, the dictionary-based approach is considered now as relatively an archaic method as it is unable to include the aspects of productivity which is central to the definition of morphological productivity (Schröder & Mühleisen, 2010). Because this method cannot state or indicate the productivity of a particular affix, it means the rate at which a particular phenomenon occurs at a certain point in time. Some affixes or word-formation processes occur more frequently as they are being used more often than others. However, a dictionary does not talk about the real usage of a particular word-formation processes or affixes. It does not contain tokens; hence it cannot tell us how frequently it is being used in a new word-formation. It only indicates an aspect of productivity by providing the type frequency. "A dictionary is always lagging behind with respect to the use of productive morphological patterns because it only registers …. established words. Morphological productivity manifests itself most clearly in the appearance of the complex words that never make it to the dictionary" (Booij 2005). This approach has a number of serious drawbacks which led to the development of advanced methods like the corpus-based approach for quantitative study. The main problems are-

i. There can be many words with a given affix, but nevertheless, speakers may not use every affix to make up new words. (Plag 2003)
ii. It only indicates past productivity.
iii. Again, the entries of words in a dictionary depend on the choice of a lexicographer and his/her knowledge too. Hence, the entries of words are rather selective than inclusive.
iv. Dictionaries often contain obsolete words but typically do not contain regular newly formed words (Evert and Ludeling 2001).
v. It does not indicate the actual usage of words.

However, this research work has decided to adopt a dictionary-based approach as one of the methods for investigation of productivity despite being aware that other more commonly acceptable methods are becoming more relevant. It is because few statistical quantitative studies on morphological productivity in Assamese has been initiated till now. It is therefore chosen to combine the two approaches to gain some understanding of the nature of productivity in Assamese derivation. Through the dictionary-based approach, it is not aimed to trace the historical productivity and development of the concerned affixes, it is incorporated aiming to find out how many different words are listed in the latest edition of the dictionary by the selected affixes. It is possible that many terms have become outdated now, or that not all words have been equally productive over time. It is certain, though, that these words were coined in the past and gained recognition from speakers for whatever reason; as a result, the lexicographer viewed them as established terms of the language and provided them entry into the dictionary. Our goal is to concentrate solely on the total number of words created with affixations up to this point. Although the number may not able to predict the absolute productivity of an affix at present or in the future, we can grasp an idea about the usage of these affixes in the production of neologisms at different points in time in the past. Because dictionaries like OED tell readers about the initial citation a word, it is simpler to determine when it was productive, because of which it is easier to trace when it was productive. Nevertheless, there is currently no comprehensive etymological dictionary for Assamese.

1.6.2 Corpus-based approach:

When it comes to corpora, a study on morphological productivity predates the availability of large-scale corpora and the established quantitative methods of productivity, though helpful, require digitally-developed large corpora. There is no denial on the fact that the Corpus-based approach is crucial to understand the nuances of productivity study unlike the dictionary-based approach, hence, it is considered an advanced approach to productivity study (Baayen 1989, 1992, 1994; Bauer 1992, 2001). However, like the dictionary method, the corpus method is also not free from drawbacks, A few methodological issues related to corpora are:

i. Small corpora are not very suitable for studying morphological productivity (Bauer 2001; cited in Plag 2003)
ii. Lack of consistent criteria for inclusion of words or selection of words (Plag 2003).
iii. The productivity of word formation patterns is highly dependent on text type; therefore, it is necessary to sample a corpus of that text type. (Baayen 1994; Evert and Ludeling 2001)

However, not only that the productivity study in Indian languages lacks a well-developed digital corpus like BNC, COCA, etc., most of the Indian languages lack digitalization of its standard and well-established dictionaries, which is why, this area of morphology is yet to be explored in many Indian languages. The lack of digitally formatted versions of Assamese dictionaries, i.e., Hemkosh, and Asamiya Jatiya Abhidhan, to name a few, hinders the process of a comprehensive study of morphological productivity. The seemingly old approach of dictionary-based study also seems not feasible due to the lack of electronic versions. In a language like Assamese where a quantitative study on productivity has not been initiated yet, the incorporation of a dictionary-based study along with corpus is expected to throw some light on the first attempt of the study. Therefore, this work aims to examine the aspects of morphological productivity in Assamese affixation through the blending of a corpus-based approach with dictionary testing.

1.7 Aims and Objectives

Despite being a common morphological phenomenon, the issue of productivity is rarely addressed quantitatively in Indian languages. That is why, considering the difficulties in obtaining resources and data collection techniques in the lack of fully developed substantial digital corpora, the study attempts to throw some light on how the affixes behave in the context of productivity nature and where they stand in relation to each other. It will make it easier to spot the fundamental patterns of the affixes when new words are formed. Considering the importance of the work, we have therefore established the following research objectives:

a) To shed light on the relative productivity of affixes by measuring their productivity.
b) To explore the various factors influencing productivity.
c) To determine the area-wise dominant affixes.
d) To compare the productivity of prefixes and suffixes.

Furthermore, we have the following research questions based on the objectives:

a) Which are the affixes that will be more dominating in the future?
b) What are the primary factors that bring differences in productivity of prefixes and suffixes?

1.8 Hypotheses

We have postulated the following hypotheses based on the preliminary results of our research:

a) The Productivity of prefixes is higher than that of suffixes in Assamese.
b) When results from different methods are compared, it is certain that some productivity patterns persist, even in small samples.

1.9 Chapterisation

Seven chapters, including an introduction and a conclusion, make up the current thesis.

Chapter 1 is a brief idea about the research that has been conducted. It provides the theoretical background of the research, review of literature, importance of the study, objectives, research questions, hypothesis and the chapterisation of the dissertation.

Chapter 2 discusses the research framework that has been carried out for the work. It includes the research approach and design, the sampling methods as well as data collection procedures. It discusses the statistical techniques that have been applied in the following chapters.

Chapter 3 is a brief sketch of the prefixes which provides an explanation of semantic relevance, their construal and negativity spectrum of the prefixes.

Chapter 4 deals with the measurement of the prefixes based on the collected data. It also discusses the role of semanticity in the prefixal productivity.

Chapter 5 provides an outline of the suffixes and measures their productivity based on the collected data.

Chapter 6 discusses the productivity of the suffixes based on their different structural aspects. It also provides an account of the overall productivity of the prefixes and suffixes.

Chapter 7 summarizes the key findings, the contribution of the research, limitations, and its future scope.