2.1 It is well known that the aims of linguistic theory as laid down by Chomsky in *Syntactic Structures* (1957) had a significant impact on the subsequent developments of linguistic theory\(^1\). However, though Chomsky's Transformational grammar was a radical departure from existing linguistic traditions in many ways, he inherited the antimentalistic attitude to meaning. Chomsky concedes in *Syntactic Structures* that though semantic studies could have interesting possibilities, it is not only entirely feasible but desirable\(^1\) to formulate a grammar without recourse to meaning\(^2\). This is what was attempted in the 1957 model, and it naturally had a significant effect on the way the notion of grammaticality developed within the framework of Transformational Generative Grammar.

It was not only opinions directly expressed by Chomsky on the nature of grammaticality, but the aims and objectives of linguistic theory as proposed by him, that were responsible for much of the interest generated

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1 This was especially true in American linguistics.
about the concept of grammaticality. More importantly, it influenced the direction in which this notion was further developed.

In *Syntactic Structures* Chomsky states that, fundamentally, the aim of the linguistic analysis of language is "to separate the grammatical sequences which are the sentences of L from the ungrammatical sequences which are not sentences of L". (Chomsky, N. 1957 : 13). This requirement was responsible for the concept of "absolute grammaticality"¹ as has been mentioned earlier. This refers to the assumption that it is possible and in fact necessary to identify sentences as clearly grammatical or ungrammatical. Sentences which do not fit into either of these classes are to be treated as semi-grammatical and are to be analysed with reference to these two clear classes.

Thus, when Chomsky, at a slightly later stage tried to account for deviant sentences that were acceptable to a native speaker, the methods that he proposed

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¹ This is in contrast to the concept of "graded acceptability" as developed in Generative Semantics (predominantly by George Lakoff). This view of acceptability rejects the idea that a sharp distinction can be made between grammatical and ungrammatical sentences in the corpus.
were based on the assumption of two clearly visible and distinct classes of grammatical and ungrammatical sentences. This approach, which could be termed as the "degree of grammaticality" approach greatly influenced the direction of research taken in the investigation of the problems of grammaticality.

Chomsky has stated in *Syntactic Structures* that "one way to test the adequacy of a grammar proposed for L, is to determine whether or not the sequences that it generates are actually grammatical, i.e. acceptable to a native speaker". (Chomsky, N. 1957 : 13).

By this statement, the grammatical status of a sentence is no longer solely dependent on how it meets the theoretical requirements of a grammar. Thus the deviance of a sentence could not be measured only in terms of the rules of grammar formulated. The linguistic intuition of a native speaker as represented by the speakers' judgement was of equal importance.

It is also significant that by the phrase "grammatical, i.e. acceptable to a native speakers" Chomsky appears to equate the two concepts. This principle, according to Bolinger, is an extremely valuable contribution of Chomsky's : "It should never
become necessary for a grammatical theory to sacrifice the best empirical principle we have, which is that all fully acceptable sentences are grammatical utterances". (Bolinger, Dwight 1980: 65).

It therefore, becomes essential for a grammar to account for deviant sentences, if they are acceptable to a native speaker.

This requirement of Chomsky's however creates a set of problems as Chomsky's basic requirements of a grammar is that it produce "all and only" grammatical utterances. This does not make it clear, or provide a method by which, the extent of deviance (to be considered grammatical) can be clearly demarcated. Nor does acceptability of a sentence depend soley on the explicit judgement of a speaker. As Chomsky puts it, "any explication of the notion "grammatical in L" (i.e. any characterization of "grammatical in L" in terms of "observed utterance of L" can be thought of as offering an explanation for this fundamental aspect of linguistic behavior" (Chomsky, N. 1957: 15).

A grammar has to not only separate the grammatical sentences from the ungrammatical ones, but the distinction made has to correspond closely to the
intuition of a native speaker. Apart from this, it has to assign a certain degree of grammaticality to any observed sentence. The degree of grammaticality thus assigned has to once again, be consistent with the native speaker's intuition.

These requirements have been adequately explicated by Lees in his review of *Syntactic Structures*. "Another internal technical problem which awaits exact solution is entailed by the establishment of a grammatical theory upon the notion of grammaticality of sentences. It is necessary to establish some scale of grammaticality along which every utterance will lie and which will correspond well to our intuitive feelings about how sentences are constructed, and which furthermore will be automatically derivable from the grammar of each particular language. This is to say that a grammar must explicate our notion that certain structures while very bizarre, are nevertheless not completely excluded by the pattern of the language, and that certain ones are less excluded than others and perhaps even by a specifiable degree. This question may very well be related to the establishment of fundamental categories". (Lees, R.B. 1957: 378).

Chomsky's theory of grammaticality was not only
not based on any study of meaning, it further claimed "that "grammatical" cannot be identified with "meaningful" or "significant" in any semantic sense" (Chomsky, N. 1957 : 15).

To prove this claim, Chomsky gives the following set of sentences as an example.

1) Colorless green ideas sleep furiously.
2) Furiously sleep ideas green colorless.
3) Have you a book on modern music?
4) The book seems interesting.
5) Read you a book on modern music?
6) The child seems sleeping.

According to Chomsky (1957 : 15) 1) is grammatical though 1) and 2) are both equally nonsenical. 3) and 4) are both grammatical sentences of English, though there is no semantic reason to prefer 3) to 5) or 4) to 6).

The differences, according to Chomsky are structural ones.

It would then appear that Chomsky is, at this point, using the term "grammatical" to refer only to ordering of syntactic elements. He does not provide any convincing argument why "these sentences suggest that a search for a semantically based definition of grammaticalness is futile" (Chomsky, N. 1957 : 16). Chomsky also does not

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1 Chomsky, N. 1957 : 15.
make it clear, on what basis he evaluates these sentences. By the same logic as employed by Chomsky, that is referring to only syntactic ordering, one might consider sentences 1), 4) and 6), to be on the same level of syntactic correctness.

Chomsky makes another important claim about the nature of grammaticality in *Syntactic Structures* (p.15) that "grammaticality" can in no way be identified with "high order of statistical approximation". As examples, he gives the sentences "I saw a fragile whale" and "I saw a fragile of", which have an equally low, i.e., zero, probability of occurrence. However, he feels that a speaker would recognise "I saw a fragile whale" as a grammatical sentences of English, and rate it higher than "I saw a fragile of" on a grammaticality scale.

To what extent frequency of occurrence affects the acceptability of a sentence is a matter worth investigation. It might be significant to point out at this juncture that Chomsky bases this claim on the fact that speakers are able to judge and understand sentences they have never heard before. This was one of the factors that drew attention to the investigation of the problem of grammaticality.
Chomsky goes on to suggest that the "sharp distinction" between "grammaticalness and ungrammaticalness" can be modified in favour of a notion of "degree of grammaticalness".

Though there were numerous changes in the views regarding grammaticality, the views put forth by Chomsky in *Syntactic Structures* had a considerable impact on the work done on grammaticality and provided a basis for many further developments as shall be seen in the following chapters.

The importance of the notion of acceptability was responsible for providing an impetus to psycholinguistic validation. Chomsky suggests that "we can take certain steps towards providing a behavioral criterion for grammaticalness". Chomsky has argued that grammatical sentences would be likely to be learned faster, and recalled with greater ease and speed, than those sentences whose grammaticality was in doubt. He also suggests that asking a speaker to read aloud sentences would provide a valuable clue to their grammaticality, as the naturalness of speaker's intonation would reveal how normal he found the sentence. For example, a meaningless string of words would be read out like a list.
Chomsky's specific suggestions on methods for behavioral tests, were followed up by psycholinguists, and provided further justification for empirical testing on grammaticality.

Though many of Chomsky's views as put forth in *Syntactic Structures* have been attacked and rejected, they have had a significant impact on the development and understanding of the nature of grammaticality.

2.2 The concept of grammaticality received more direct treatment in the period after the publication of *Syntactic Structures*, when the Transformational Generative Model was undergoing modifications which were to result in a new model.

The work done at this stage\(^1\), however, had its basis in Chomsky's earlier, then unpublished *The Logical Structure of Linguistic Theory*.

The idea introduced in *Syntactic Structures* that acceptability be a necessary criterion for judging sentences entailed that it was no longer sufficient for

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\(^1\) Chomsky, N. 1963\(a\), 1963\(b\), 1964\(a\)
the grammar to merely separate sentences from non-sentences. The problem now was to account for deviant and semi-grammatical sentences within the framework of Transformational Generative grammar, by assigning them "degrees of grammaticalness". We find thus, that the corpus of the T.G. Model now extends beyond "all and only sentences of L". This inclusion of deviant sentences in the corpus is considered necessary as "There are circumstances where the study of deviant sentences is very much in place". (Chomsky, N. 1964 : 384).

Grammatically deviant utterances, according to Chomsky, are those which are deviant but comprehensible to the hearer. They are understood by exploiting the structure that is preserved, and by the hearer being able to construct analogies, with well-formed sentences. Thus, unlike in the case of totally grammatical sentences, a number of steps\(^1\) are required to interpret a grammatically deviant sentence.

"The question then arises: by what mechanism can a grammar assign to an arbitrary phone sequence a structural description that indicates its degree of

\(^1\) "a series of steps that are initiated by the recognition that this phrase deviates from a certain grammatical rule". Chomsky, N. 1964 : 385.
grammaticalness, the degree of its deviation from grammatical regularities and the manner of its derivation". (Chomsky, N. 1964: 386).

According to Chomsky, it is our recognition of deviance that enables us to make the necessary steps for interpreting a deviant sentence. It is this recognition ability which has to be incorporated into the model of generative grammar.

Chomsky proposes the assumption that we have a grammar that generates an infinite set of formatives. These formatives are ordered into an n-level of hierarchy of categories. Also, each level is "a refinement of the preceding one, i.e. a classification into subcategories of the categories of the preceding level". (Chomsky, N. 1964: 387). Thus, on level one there is a single category, C₁, which is the category of all formatives. On level two categories are labelled C₁²...C₂n₂. Level three has categories C₁³...C₃n₃ (where n₃ > n₂). This goes on till the mth level, with categories C₁ᵐ...Cₘnₘ. The categories are exhaustive at each level, so every formative finds representation on at least one level.
This method of assigning degrees of grammaticalness is based on subcategorisation and selectional rules. A grammar must describe selectional relations between elements of a sentence, i.e. an element belonging to a certain category requires in its environment an element of another category, or the sentence will not fully grammatical. Thus a grammar which generates "Peter admires sincerity" or "John loves company" might also generate "Sincerity admires Peter" or "Misery loves company" but it would assign them a lower degree of grammaticality.

Going back to the m-level hierarchy of categories proposed, Chomsky illustrates how this might apply to English, using just three categories as an example -

On level one we would have
\[ C_1^1 \quad C_1^1 \quad C_1^1 \] (the class of all words)

On level two
\[ C_2^2 \quad C_2^2 \quad C_3^2 \] and so on, where \( C_1^2 \) represents Nouns, \( C_2^2 \) all Verbs, \( C_3^2 \) Adjectives and so forth.

On level three
\[ C_1^3 \quad C_2^3 \quad C_3^3 \] would represent subcategories of Nouns and Verbs etc. Thus using the example "John loves company" as a fully grammatical sentence, "Misery loves company" as a semi-grammatical sentence, and "Abundant loves company" as a fully deviant sentence, we find
that the fully grammatical "John loves company" can find representation on all levels. But "Misery loves company" can share representation on level two with "John loves company" as $C_1^2 C_2^2 C_1^2$ (NVN). It is thus considered semi-grammatical. Apart from this hierarchy of categories the grammar needs selectional rules which will prevent, for example, strings represented as $N_{\text{abstr}} V N_{\text{abstr}}$ (Misery loves company) from appearing at the level of the fully grammatical sentences.

What Chomsky seems to suggest is a sort of sub-component which will contain a hierarchy of categories and subcategories supplemented by selectional rules. According to Chomsky "a degree of grammaticalness is a measure of the remoteness of an utterance from the generated set of perfectly well-formed sentences, and the common representing category sequence will indicate in what respect the utterance in question is deviant". (Chomsky, N. 1964 : 387).

A more refined class of categories would enable the production of subcategorisation rules that would be sensitive to finer distinctions of grammaticality.
2.3 Chomsky has suggested two approaches for deriving a hierarchy of categories from a generative grammar. One of these is that one finds the categories within the Transformational model, and uses symbols like Noun and Verb (as has been partially illustrated) as well as "narrower sub-categories". This approach has been described earlier. The other alternative suggested by Chomsky is by way of "optimal K-category analysis for arbitrary K". ¹

Since this is a schematic solution, Chomsky proposes that for the sake of simplicity, it has to be assumed that there is a corpus in which all the sentences are of the same length. Categories C₁...Cₖ are categories that may overlap and give an "exhaustive classification" of all formatives. Each sentence is represented by one category sequence and, in turn, each category sequence will represent numerous sequences of formatives. However, many of these sequences of formatives may not be in the corpus, and further, these sequences will not be distinguishable, in effect, from those in the corpus, at least in terms of these categories.

¹This methodological approach has been heavily influenced by logic, as shall be seen.
It is natural to define the optimal $K$-category as that which extends the corpus the least, i.e., which best reflects, substitutability relations within the corpus. Given for each $K$, the optimal $K$-category analysis, we might select the optimal $K$-category analysis as a level of the hierarchy if it offers a considerable improvement over the optimal $K-1$-category analysis, but is not much worse than the optimal $K+1$-category analysis". (Chomsky, N. 1964: 389).

Though these alternatives are, according to Chomsky "highly tentative and schematic", he has developed it in a detailed and formalized manner in *Logical Structure of Linguistic Theory* and later in collaboration with G. Miller. The arguments are based on two restrictions -

1. The length of the sentences of the corpus is fixed at length $\lambda$.
2. In this system of categories $\mathcal{T}_i = (C^1_1, \ldots, C^1_{a_i})$, $a_i$ is fixed.

The choice of $a_i$ categories will rest on the criterion of "maximum substitutability". This substitutability is not in terms of $L(G)$ but is defined within the categories of $\mathcal{T}_i$. 
According to the structure of hierarchy of categories proposed earlier, the words "boy" and "idea" would be substitutable in $C_2$. They can both appear in the context Art. -- N V Adj. But they cannot be freely substituted in actual contexts of $L(G)$ as in "The — goes for a stroll every evening".

Thus, maximum substitutability has to be the property of the whole system of categories. To avoid this problem, it is further supposed that

1. $\sigma_1$ is a sequence $S_1, ..., S_m$
   It is the sequence of all the sentences of the length $\lambda$ in $L(G)$.

2. $C_i$ is the proposed set of $ai$ categories.

3. $\sigma_2$ is a sequence of sentence forms $\Sigma_1, ..., \Sigma_m$, where for each $j \leq m$,
   generates $S_j$ ($\Sigma_j$ contains categories of $C$)
   $\sigma_2$ will naturally contains repetitions.

4. $\sigma_3$ is the sequence $t_1, ..., t_n$ of all strings generated by $\Sigma_j$ in $\sigma_2$, and contains no repetitions.

The number of sentences in $\sigma_3$ reflects the substitutability relations. For example: if $\sigma_1$ contains
a) 'The boy ran', and b) 'The contract terminated' but not c) 'The boy terminated' and d) 'The contract ran'. \( \sigma_2 \) will contain the sentence form Art N V. \( \sigma_3 \) will contain sentences a) b) c) and d).

For the evaluation of the system \( C_i \) of ai categories we have to find a sequence " \( \sigma_2 \) that covers \( \sigma_1 \) .... and that is minimal in the sense that it generates the shortest sequence \( \sigma_3 \)". (Chomsky, N. and G. Miller 1963 : 447).

This scheme is further expanded to include sentence and discourse forms. "We now select a word as a sentence boundary marker. \( \# \notin S_i \) for any j. A discourse is defined as a sequence of words
\[ \# w_1^{1} .... w_{\alpha_1}^{1}, \# w_2^{2} .... w_{\alpha_2}^{2}, \# .... \# \cdot w_{\alpha_k}^{K} .... w_{\alpha_k}^{K}, \]
where each \( j, w_{\alpha_j}^{j} \) is a sentence generated by G. This is a discourse of length \( \alpha_1 + .... \alpha_k \). A discourse form is defined as a sequence of categories \( C_i^{1} .... C_i^{k} \) of categories of \( C_i \) or \( \{ \# \} \) such that there is a discourse \( w_1^{1} .... w_q^{q} \) where for each \( j, w_j \in C_i^{j} \)." (Chomsky, N. and G. Miller 1963 : 448). (An initial discourse is the initial subsequence of a discourse, and an initial discourse form is the initial subsequence of a discourse form).
It is then supposed that $\Sigma^\lambda$ is the set of initial discourse forms which are of the length $\lambda$.

The number of distinct strings generated by its members is $N(\lambda)$. There is further the assumption that $a_1 \ldots a_n$ are the integers that determine the number of categories. One has to determine for each $n$, the optimal categorisation $K_n$ into $n$ categories. For the selection of the hierarchy $\mathcal{C}$ from the set $\{K_n\}$ it has to be first determined "for which integers $a_i$ we will actually set up the optimal categorisation $K_{a_i}$ as an order $\mathcal{C}_i$ of $\mathcal{C}$". $a_i$ is to be selected in a way "that $K_{a_i}$ is preferable to $K_{a_i} - 1$, not much worse than $K_{a_i} + 1$.

2.4 Chomsky has formalised this theory of his more rigorously and exhaustively with the collaboration of Miller (1963) in *Introduction to the Formal Analysis of Natural Languages* and *Finitary Models of Language Users* (1963). Though based on the degrees of grammaticalness approach, and similar in essence, the formalisation is more detailed and mathematical.
A generative grammar is described as "a device that enumerates a certain subset of \( L \) of the set \( \Sigma \) of strings in a fixed vocabulary \( V \), and that assigns structural descriptions to the members of the set \( L(G) \) which we call the language generated by \( G \). \( G \) defines a class \( L_1 \) of completely well-formed sentences in \( \Sigma \). \( G \) orders the other strings in \( \Sigma \) in terms of their degrees of grammaticalness. However, strings which are not in \( L_1 \) are also understood by speakers of the language by finding similarities and constructing analogies on the basis of strings in \( L_1 \).

\( G \) however is expected to provide a structural description giving the extent and manner of deviation of strings " \( \Sigma \cap \tilde{L}_1 \)."

To measure deviation in at least one respect, Chomsky suggests that a word unit (without distinguishing inflectional forms) is chosen. Then a hierarchy \( \mathcal{C} \) of classes is set up of these units where \( \mathcal{C} = \mathcal{C}_1, \ldots, \mathcal{C}_N \) and for each \( i \leq N \), \( \mathcal{C}_i = \{ \mathcal{C}^1_i, \ldots, \mathcal{C}^a_i \} \) where \( a_1 > a_2 > \ldots > a_N = 1 \). \( \mathcal{C}^i_j \) is non-null. For each word \( W \) there is a \( j \) such that \( W \in \mathcal{C}^i_j \).

In this hierarchy, \( \mathcal{C} \), is "the most highly
differentiated class of categories". $\mathcal{C}_N$ contains a single category $\mathcal{C}_i$ is the categorisation of order $i$ if its members are called the categories of order $i$.

A sequence $c_{b_1}^i \cdots c_{b_q}^i$ of categories of order $i$ is called a sentence form of order $i$. It generates the string of words $w_1 \cdots w_q$ for each $j \leq q$ $w_j \in c_{b_j}^i$.

"Thus the set of all word strings generated by a sentence-form is the complex (set) product of the sequence of categories" (Miller, G. and N. Chomsky 1963 : 444).

To relate this hierarchy $\mathcal{C}$ of classes and $G$ we say that a set $\Sigma$ of sentence forms of order $i$ covers $G$ if each string of $L(G)$ is generated by some member of $\Sigma$. (Miller, G. and N. Chomsky 1963 : 444).

A sentence form is grammatical with respect to $G$ if one of the strings that the sentence-form generates is in $L(G)$. It is "fully grammatical" with respect to $G$ if all the strings generated by it are in $L(G)$. $\mathcal{C}$ is compatible with $G$ if 1. "There is a set of fully grammatical sentence-forms of order one that covers $G".}
2. \( \mathcal{C}_i \) be the smallest set of word classes to meet this condition.

(In the case of homonymous words for eg. 'know' and 'no'. "Know will be in \( \mathcal{C}_i \) and No in \( \mathcal{C}_j \) where \( i \neq j \)...

if two words are mutually substitutable throughout \( L(G) \) they will be in the same category \( \mathcal{C}_i \)."

Thus, the strings which have the highest degree of grammaticality will belong to order 1, which has the largest number of categories. But all strings would be grammatical in order N as it has only one category.

It can be seen that this methodology proposed by Chomsky and Miller is essentially the same as described earlier though it is a more detailed and formalized version.

Similarly, a more detailed exposition of the hierarchy of categories is given. As an example we have "an extremely primitive hierarchy \( \mathcal{T} \) of categories".

\( G \) is the grammar, and \( \mathcal{T} \) the system of categories compatible with it.

\( \mathcal{C}_i \) will be the most highly differentiated,
and here, $C_3$ is taken as the category which has only a single class-word.

Thus, for example:

$C_1: N_{\text{hum}} = \{\text{boy, man} \ldots \}$

$N_{\text{ab}} = \{\text{virtue, sincerity} \ldots \}$

$N_{\text{comp}} = \{\text{idea, belief} \ldots \}$

$N_{\text{mass}} = \{\text{bread, beef} \ldots \}$

$N_{\text{comm}} = \{\text{book, chair} \ldots \}$

$V_1 = \{\text{admire, dislike} \ldots \}$

$V_2 = \{\text{annoy, frighten} \ldots \}$

$V_3 = \{\text{hit, find} \ldots \}$

$V_4 = \{\text{sleep, reminisce} \ldots \}$

$C_2: N_{\text{Noun}} = N_{\text{hum}} \cup N_{\text{abst}} \cup \ldots$

$V_{\text{Verb}} = V_1 \cup V_2 \cup V_3 \cup \ldots \text{ etc.}$

$C_3 = \text{Word}$.

This again, one finds, corresponds to the earlier levels one, two and three, though in reverse order.

Thus, using the same kind of classification sentences like "the boy cut beef", "the boy reminisced", "the boy who annoyed me slept here" are considered one grammatical. Whereas, "the beef cut sincerity", "sincerity reminisced" etc. are two grammatical. One grammatical strings do not need to have an interpretation imposed on them.
The highly formalised subcomponent which is to account for a kind of deviance within the Transformational Grammar model, is an attempt at formulating a rigorous methodology. This could enable the grammar to provide the degree of deviance, without recourse to meaning or explicit speaker judgements.

This formulation does not seem to have had direct impact for two reasons - one that it is highly schematised and formal, and hence not greatly viable in conjunction with syntactic analysis that was itself in a process of change. The other reason is that these developments were followed closely by the publication of the 1965 model of Transformational Grammar with a semantic component. Thus there was a very basic reorientation in the theory.

The importance of this formulation of categories is that it is the intermediate stage of the development of Strict Subcategorisation Rules and Selectional Restrictions. Thus it can be said that the accounting for a range of deviance within the Transformational Grammar model led to the development of these rules which play a very important role in the revised 1965 model.
2.5 Chomsky's views on deviation, and the development of the notion of grammaticality are crystallised and more clearly defined in terms of linguistic theory in "Aspects of the theory of Syntax" (MIT 1965). With the changes in the Transformational Generative model and the addition of the semantic component, grammaticality is also redefined in terms of semantics.

Though Chomsky's earlier work on "grammaticality" and his idea of degrees of grammaticalness had generated some amount of interest in the concept, with the publication of "Aspects", the problem of grammaticality moved to the centre of Transformational Generative theory.

As shall be seen later, these developments brought in their wake a renewed spate of operational tests devised to test many of Chomsky's views on grammaticality and the nature of deviance.

In Aspects, Chomsky defines for the first time the relationship between grammaticality and acceptability and where these stand in relation with other concepts of linguistic theory.

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1 Henceforth referred to as "Aspects".

2 For example, in the works of Katz, Ziff, Hill, Putnam, etc.
Chomsky reiterates that linguistic theory is concerned with "an ideal speaker-listener in a completely homogeneous speech community" (Chomsky, N. 1965 : 3). Also, the chief concern of linguistic theory is the competence of the native speaker, and factors of performance come in only as far as investigation of competence necessitates. It is against the background of competence and performance that Chomsky has defined grammaticality and acceptability. "The notion "acceptable" is not to be confused with "grammatical". Acceptability is a concept that belongs to the study of performance, whereas grammaticality belongs to the study of competence". (Chomsky, N. 1965 : 11).

According to Chomsky, acceptable sentences are those that are 'natural' and not 'bizarre and outlandish' in any way. They are "immediately comprehensible" and do not need an interpretation to be imposed on them. They are also more likely to be produced and understood. "Unacceptable sentences tend to be avoided and replaced in actual discourse".¹ (Chomsky, N. 1965 : 11).

¹ By this statement, Chomsky contradicts his earlier stand, that grammaticality has nothing to do whatsoever with the "likelihood of occurrence".
Sentences can technically be lower on the 'grammaticality scale' and yet be more acceptable than the ones which are higher on this scale. "Like acceptability, grammaticalness is no doubt a matter of degree, but the scales of grammaticality and acceptability do not coincide".

Chomsky goes on to say that "grammaticality is only one of the factors that contribute to the acceptability of a sentences in grammatical terms". (Chomsky, N. 1965 : 11).

These claims and observations put forth by Chomsky became the basis for many tests. This was probably due to the fact that Chomsky made claims that seemed conducive to testing, and by his own speculation about the possibility of devising operational tests to test and clarify some of the concepts. Chomsky considered that it was possible to devise tests for acceptability, but one could not gain anything from devising tests for quantifying or testing factors of grammaticality, - a concept which is far more abstract and complex. Acceptability, though a matter of degree like grammaticality, would consist of more dimensions that could be tested. "One could go on to propose various operational tests
to specify the notion more precisely (for example, rapidity, correctness, uniformity of recall and recognition, normalcy of intonation)" (Chomsky, N. 1965 10).

With the addition of the semantic component, and the radical shift in the attitude to meaning, there was naturally a redefinition of the concept of grammaticality.

Chomsky differentiates between cases of purely syntactic deviation and "semantic incongruity". Sentences like "sincerity frighten may boy the" represent purely syntactic deviation, whereas "oculists are generally better trained than eye doctors" and "the ice cube that you finally managed to melt just shattered" are representative of semantic deviance.

What Chomsky feels is "at stake" is the status of sentences like "the boy elapsed" "the harvest was clever to agree". These have a borderline character and are much more difficult to explain.

Thus, the addition of the semantic component does not merely mean that it provides semantic solutions to semantic problems, but "in other words, we must face the
problem of determining to what extent the results and methods of syntactic or of semantic analysis can be extended to account for the deviance and interpretation of these expressions. It goes without saying that the same answer may not be appropriate in all of these cases and that purely semantic or purely syntactic considerations may not provide the answer in some particular case. In fact, it should not be taken for granted necessarily, that syntactic and semantic considerations can be sharply distinguished". (Chomsky, N. 1965 : 77).

It is this aspect of the change in attitude to meaning that seems most significant - the realisation that the inclusion of semantics is not only essential, but that it is not necessarily distinguishable from syntax.

Chomsky feels that the "degrees of grammaticalness" approach is the most plausible one developed "so far" to deal with deviance and semi-grammaticality as it shows how "syntactic considerations can provide a subclassification of the appropriate sort", based as we have seen on subclassification. The only semantically oriented suggestion, accounting for these distinctions, according to Chomsky has been "that they are based on language - independent semantic absolutes - that in
each case, the deviance is attributable to violation of some linguistic universal that constrains the form of the semantic component of any generative grammar. Chomsky suggests that a combination of both the approaches might prove fruitful: "a linguist with a serious intent in semantics will presumably attempt to deepen and extend syntactic analysis to the point where it can provide the information containing subcategorisation instead of relegating this to unanalysed semantic intuition, there being, for the moment, no other available proposal as to a semantic basis for making the necessary distinctions. (Chomsky, N. 1965 : 75).

In the Aspects model the problem of the hierarchy of categories moves into a focal position. Continuing in what seems to be a natural line of development from the method suggested in the earlier papers, as a means to account for deviance and semi-grammaticality one sees that this problem of subcategorisation now occupies a major place.

The syntactic component of the 1965 model contains a Base which generates deep structures. The Base contains a Lexicon which is a set of lexical entries. Each lexical entry contains a phonological feature matrix and a
"complex symbol" which is a collection of various syntactic and semantic features. To give an oversimplified description - the Base contains general rules of subcategorisation where a category is "positively specified with respect to the contextual feature associated with the context in which it occurs". These are further developed in strict subcategorisation rules\(^1\), which analyse a symbol in terms of its categorial context. This means that the contextual frame is stated in terms of categorial symbols.

Selectional Rules\(^2\) are rules which analyse a complex symbol "in terms of the syntactic features of the frames in which it appears." They place selectional restrictions, thus limiting co-occurrence.

A further distinction can be made concerning types of deviance. Violations of strict subcategorisation rules yield semi-sentences like "John found sad" "John became Bill to leave" and violations of selectional rules yield semi-sentences like "Golf plays John" "Midnight drank John" and "Colorless green ideas sleep furiously".

\(^1\) Chomsky, N. 1965 : 72

\(^2\) Chomsky, N. 1965 : 93
Selectional Rule violations are easier to account for, as they can generally be interpreted metaphorically, as personification, etc.

According to Chomsky, a grammar which can make the distinction between these types of deviance "takes several steps towards the development of a significant theory of degrees of grammaticalness".

Chomsky makes some very useful observations in this regard. Sentences which are deviant as a result of violating selectional rules are likely to be more difficult to interpret when such a rule contains a higher level lexical feature such as [count]. At the same time, many low-level syntactic features do not tolerate deviations easily, for example "The book who you met is John" violates the feature [human] but is syntactically unacceptable.

Chomsky had concentrated in his earlier works to attempt a definition of at least one kind of deviation. Chomsky's view was that the attempt would be much more plausible if restricted to the issue of accounting for only that kind of deviation as is caused by violation or relaxation of selectional rules, rather than trying to account for the entire possible range of deviation.
It is important to note, that following this, "we might conclude that the only function of the selectional rules is to impose a hierarchy of deviation from grammaticalness on a certain set of sentences, namely those sentences that can be generated by relaxing selectional contraints while otherwise keeping the grammar unchanged". (Chomsky, N. 1965 : 152).

We thus find that the problem of grammaticality is no longer a peripheral issue but forms part of the core of the model.

Chomsky also suggests a method by which a sort of hierarchy of deviance can be imposed. Since the grammar imposes an order in terms of dominance among features in a Phrase Marker, "the deviation is greater, the higher in the dominance hierarchy is the feature corresponding to the rule that is relaxed". (Chomsky, N. 1965 : 152).

Chomsky finally suggests that selectional rules be dropped from the syntactic component. Thus, the semantic component can impose a hierarchy of degrees of grammaticalness. This can be done by adapting the projection rules so that they can "detect and interpret conflicts in feature composition".
The development of the notions "grammaticality" and "acceptability" within generative grammar has undergone several changes as is evident from the preceding review of Chomsky's work.

Chomsky has attempted to define "grammaticality" and "acceptability" as notions referring to two distinct areas. However, it can be seen that if the implications of these two notions are investigated, a certain amount of overlapping exists. This argument is dealt with in detail in Chapter Five.

It appears that the need for accounting for grammaticality within the Transformational framework resulted in the formulation of subcategorisation rules and selcetional restrictions. As has been described earlier (Section 2.3) a schemata with a hierarchy of categories and a set of selectional rules had been proposed by Chomsky. The schemata was to account for deviant sentences that were, however, acceptable to a native speaker. The formulation of Strict Subcategorisation Rules and Selectional Restrictions was based on this system of hierarchy of categories.
It is important to note that the Strict Subcategorisation Rules and Selectional Restrictions were originally formulated to account for deviance, but eventually functioned as grammatical rules in the Aspects model. Selectional Restrictions are finally described by Chomsky as having the sole function of preventing deviance.

In the Aspects model, the scope of the grammar in accounting for deviance is severely restricted. Chomsky does not aim at accounting for various types of deviance. The only type of deviance which Chomsky now attempts to treat is that which is caused by violation of Selectional Restrictions.

We thus find that though the formulation of subcategorisation rules was a consequence of the attempt to incorporate a scale of grammaticality in the grammar, the problem remains largely unresolved.

With the addition of the semantic component, the issue of meaning also could no longer be ignored, or treated as peripheral. This increased the need for a solution which would theoretically represent how meaning of semi-grammatical strings is conveyed.
With Chomsky's suggestion that the semantic component could impose a hierarchy of degrees of grammaticality, the issue of grammaticality in Transformational Generative Grammar completed a full circle. It is significant to recall Chomsky's initial statement that grammaticality cannot be confused with meaningfulness.

At the end of Aspects, Chomsky is not able to provide a solution for other kinds of deviance to be accounted for. Nor has he suggested a concrete methodology by which the semantic component can "interpret and detect" deviance through projection rules.