

Notes on Theories of Deviations

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(Received September 2, 1967)

How can we understand utterances somewhat deviant from linguistic regularities? How far can they deviate from those regularities without losing intelligibility? Theories of deviations are expected to throw light on these questions. The theories, furthermore, acquire a greater importance when they come to be associated with the knotty problem of the boundaries between syntax and semantics. In view of the recent developments of transformational generative grammar, our attention is first focussed on the Chomskyan category-hierarchy approach to deviations, and then Katz's theory of "semi-sentences" is examined, and we are finally led to Weinreich's grammatico-semantic treatment of deviations. The notes conclude with an attempt at classifying deviant utterances in terms of the rules violated in the process of their generation.

1.

Naturally 'deviations' mean 'deviations from regularities.' This is Paul Ziff's utterance [12], which is undoubtedly not a deviant utterance. But, then, what regularities? It would be rash to say that they are grammatical regularities. For the word 'grammatical' or its quasi-synonymous 'syntactic,' as it is commonly used, has an implication of excluding semantic considerations. And any discussion on deviant utterances without semantic considerations is inevitably trivial and insignificant.

So, for the present, let us call our regularities 'linguistic regularities,' or simply 'regularities' without specifying whether they are syntactic or semantic or a combination of both.

2.

In discussing deviant utterances, one cardinal point is that not all deviant utterances are meaningless or unintelligible. Far from it; deviant utterances are sometimes comprehended perfectly and sometimes used purposefully in order to convey what non-deviant utterances could not signify. The ques-

tion may then be raised how deviant utterances can be understood and how far they may deviate from regularities without losing intelligibility. Various theories of deviations have recently been put forward to account for these questions, and mine is only a fragmentary note on these theories.

3.

Katz[5] partitions the set of deviant utterances into two exclusive and jointly exhaustive proper subsets: the set of interpretable (intelligible) utterances (which he calls 'semi-sentences') and the set of nonsense utterances. It may well be doubted if the exact partition between the two subsets is ever possible and that even keen 'intuitions' of native speakers may not vary considerably as to whether an utterance belongs to one set or the other. Apart from such extreme cases, however, there may be a fairly general agreement that one deviant utterance is intelligible or nonsensical. On this assumption, we will henceforth be solely concerned with somehow intelligible deviant utterances (i. e. Katz's 'semi-sentences').

4.

As stated at the outset, deviations mean 'deviations from regularities.' If we tentatively leave out of consideration phonological (or graphological) regularities, regularities may be classified customarily either as syntactic or as semantic. Ziff [12] or, more recently, Weinreich[11], proposes that the distinction should be between syntactic-semantic and nonsyntactic-semantic regularities, rather than between syntactic and semantic regularities. I am inclined to agree with them, but this is anticipating later discussions.

It will be observed that most theories of deviations attempt to correlate deviations with regularities of one sort or another in the language. This may be tantamount to the contention that we understand or interpret a deviant utterance by associating it with some nondeviant regular utterance(s). Then, so that we may understand a deviant utterance, we must discern the regularities with which it is associated and recognize the respects in which it deviates from these regularities. As it is the search for grammatical regularities that is the primary aim of every grammar, every grammar may be said to have (at least part of) a theory of deviations to offer. And we find most explicit proposals made in this direction by generative grammarians.

5.

A generative grammar in a narrower sense may be regarded as a device that generates all and only grammatical strings in the language, with structural descriptions assigned to each of them. The grammar in this sense divides all strings into two categories, grammatical and ungrammatical. True, it is powerful enough to account explicitly for grammatical regularities, but it is inadequate to cope with deviations from these regularities. Chomsky and Miller([2][7][8]) suggest that the grammar can be extended by regarding

it as a device which generates a class of well-formed (non-deviant) strings obeying regularities and which at the same time partially orders all strings in the language in terms of 'degrees of grammaticalness.'

Here we are faced with the difficult task of assigning different degrees of grammaticalness to strings in such a way that they would reflect the manner and extent of their deviations from regularities. Chomsky [2] (and Miller [8]) gives a tentative proposal to deal with this task: a hierarchy of categories of linguistic units('formatives') is so constructed that on each level of the hierarchy each formative belongs to at least one category and that each level will be a refinement of the preceding level, that is, a subcategorization of the categories of the next lower level. In this hierarchy the violation of a 'co-occurrence' (selection) rule on a certain level may be admissible on the preceding lower level; thus the observation of a higher-level regularity generates a more grammatical utterance. Through a more and more refinement of the hierarchy of categories, the same utterance may be assigned various degrees of grammaticalness.

Supplemented by a hierarchy of categories, Chomsky contends, a grammar not only generates sentences with structural descriptions but also assigns to each string a degree of grammaticalness that measures its deviation from grammatical regularities as well as a partial structural description indicating how this string deviates from regularities.

6.

Katz's criticism [5] of this conception of the category-hierarchy theory seems to rest upon the observation that strings on a higher level of the hierarchy which are therefore given higher degrees of grammaticalness are not necessarily more easily comprehensible than those on a lower level; this theory is, he points out, also unable to decide between intelligible deviant utterances and nonsense

utterances. As regards this theory, Weinreich[11] too calls our attention to the fact that no criteria are offered there for setting up discrete levels.

Ota[9] expresses the fear that such subcategorizations might be required to proceed so far that each formative comes to belong to its own particular category or a unique class. In this connection, he refers to Putnam[10] who finds it unhappy to call those regularities grammatical (i. e. syntactic) which pertain to a very small class of utterances. He would perhaps like to call them semantic regularities. He is of the opinion that it is a matter of convenience exactly where to draw the line between syntactic and semantic regularities. Once again the problem of the boundaries between syntax and semantics imposes itself upon us.

7.

Partly developing his theory of category-hierarchy and partly meeting criticisms such as by Katz or Ota, Chomsky[3] gives a more elaborate analysis of deviant utterances.

Ota's suggestion that rules introducing terminal vocabulary should belong to lexicology rather than to syntax may be in keeping with Chomsky's newer conception of the form of the grammar; the base of the syntactic component is divided into two sub-components: the categorial subcomponent of a sequence of context-free rewriting rules and the lexicon of an unordered set of lexical entries which are represented by pairs of distinctive feature matrix and a complex symbol standing for syntactic features. It is this separation of the lexicon from syntactic rewrite rules that makes it possible to specify idiosyncratic features of each entry in the lexicon, thus simplifying the grammar greatly.

As an important impact of the new organization of the grammar on the theory of deviations may be mentioned the distinction between strict subcategorization rules and

selectional rules. Strict subcategorization rules analyze a symbol in terms of its categorial context, while selectional rules analyze a (complex) symbol in terms of syntactic features in which it appears.

By breaking any of the rules we can make an utterance deviant. The violation of a lexical category results in a most obvious syntactic deviation; 'honesty might happy the girl' is deviant because the (tagmemic) position of 'happy' is not filled in by an item having a lexical category feature [+V]. 'Honesty might go the girl' is deviant because a strict subcategorization feature [+V, +__NP] is not satisfied by 'go' which is usually specified as [-__NP]; this deviation is explained as the case of strict-subcategorization violation.

The third type of deviations results from conflict with a selectional rule; 'the girl might frighten honesty' is deviant because a selectional feature of 'frighten' usually contains [+ [+Abstract] __ ... [+Animate]]. This type of deviation due to the violation of selectional rules again raises the question whether the deviation is syntactic or semantic. Traditional grammars as well as common sense may not hesitate to classify the first two types as syntactic deviations while the last type may be regarded either as semantic or even nondeviant as far as grammar is concerned. The reason is mainly that this type of deviant utterance can often be interpreted metaphorically by a direct analogy to nondeviant utterances which observe the selectional rules in question. This problem of interpreting deviant utterances will be our main concerns in following sections.

Obviously there are many other cases of deviant utterances. The deviations mentioned above are all connected with the base component. Deviations also result from the violation of transformational rules. Thus, 'he went not to school yesterday' is deviant

because the obligatory do-transformation is not applied after the negation-transformation.

Or 'returning home, the man was found by the wife to have been dead' is deviant because the deletion of the subject of 'return' (i. e. the wife) is against the 'recoverability condition.' In general it may be said that the so-called 'filtering' function of the transformational component serves to prevent a generalized phrase-marker from randomly qualifying as a deep structure of some utterance, thus blocking the generation of a deviant surface structure.

Violations of transformational rules are generally (often too) obvious, and they are almost unanimously recognized as grammatical (syntactic) deviations. Deviations in the phonological (or morpho-phonological) component are of course rampant; non-native speakers are never expected to be completely nondeviant in this respect.

8.

We are now ready to be concerned with the problem how deviant utterances can be understood. As is already observed, deviant utterances are understood by being associated with non-deviant ones. Katz [5] formulates this conception in formal terms.

A native speaker knows, though perhaps implicitly, a system of rules associating a non-null set of non-deviant utterances with each utterance. The speaker is supposed to interpret the deviant utterances as if it were those (non-deviant) utterances associated with it by the rules. These rules ('transfer rules') transfer to a deviant utterance the meanings of the non-deviant utterances associated with it.

The important point here is that the association between a deviant utterance and non-deviant ones is usually one to many, not one to one. Thus with each deviant utterance is associated a set (which Katz calls a 'comprehension set') to which often belong

many elements of non-deviant utterances. The qualification of an utterance as a member of the comprehension set is that it be a paraphrase of other members of the same set. On this observation Katz bases his contention that a theory of deviations cannot solely be a syntactic theory but must contain semantic considerations, and that it should have some means of deciding when two utterances are paraphrases (which are evidently semantic notions) of one another. As contrasted with 'semi-sentences', nonsense utterances are always associated with a 'null' comprehension set or an infinite set. It may of course be possible that deviant utterances are ambiguous in the same sense as non-deviant utterances are; the ambiguity of a deviant utterance is attributable to the fact that its comprehension set has more than one paraphrase-independent members. (Throughout this paper we are not concerned with ambiguities of utterances, deviant or non-deviant.)

By a system of transfer rules elements in the set of deviant utterances are mapped into elements in the set of non-deviant utterances so that a speaker's understanding of a non-deviant utterance is a possible way of understanding a deviant utterance one of whose images by the mapping is the non-deviant utterance. In this way the problem of how deviant utterances are understood is reduced to the problem of how non-deviant utterances and therefore regularities are understood by native speakers.

Transfer rules, which may be formulated in connection with both phrase-structure rules and transformational rules, will be frighteningly complicated unless they are of a very general nature, and the search is therefore necessary for rules relating to a huge class of transformations and phrase-structure rules; schematically every transfer rule will be of the form that a certain set of regular rules may be violated in a certain way under

some definite condition, with the result that a certain deviation may occur. Furthermore, Katz notes that some 'traffic rules' are needed to prevent transfer rules from producing nonsense utterances; these rules are intended to restrict the application of transfer rules so that deviations may not go so far as to produce non-intelligible utterances.

9.

Chomsky[3] regards the question as to whether the grammar should generate deviant utterances as purely terminological. A grammar, to be descriptively adequate, must assign to each string a structural description that indicates the manner of its deviation from regularities. He would say that the grammar 'directly generates' the set of non-deviant utterances with their structural descriptions, while it 'derivatively generates' all other strings with their structural descriptions indicative of degrees of deviations from regularities. A generative grammar even with a device of generating derivatively deviant utterances will, however, be of little interest if deviations generated are confined only to purely syntactic ones. And if we are to account for grammatico-semantic or semantic deviations, we need must face semantic aspects of the language. For instance, Katz's notion of 'comprehension set' depends upon the semantic criterion of 'paraphrase'; again, just as there are utterances syntactically deviant but comprehensible, there are utterances semantically deviant but somehow intelligible; as Katz suggests, 'semantic' transfer rules and 'semantic' traffic rules are to be constructed in parallel with his theory of 'syntactic' deviations.

10.

Katz's theory of deviations perhaps rests upon his semantic theory[6], in which semantics is assumed to begin where syntax ends. Weinreich[11] remarks that this rigid distinction between syntax and semantics,

workable as it is in systems of artificial languages, is inapplicable to natural languages. If it is observed in linguistics proper and semantics is supposed not to begin until syntax leaves off, we are, he maintains, claiming too much for syntax. "Even if the constituent elements of a language can be exhaustively and uniquely divided into a non-terminal and a terminal vocabulary (so that the former belongs to the grammar and the latter to the lexicon), there is no substance to the view that the terminal vocabulary alone is involved in semantic considerations." It would be better then to conclude that, though theoretically neat, the dichotomy between syntactic and semantic deviations may be illusory, if we wish to avoid circular and undecidable arguments as to the borderline between these two deviations.

11.

According to the more recent theory by Chomsky[3], the transformational component is purely interpretative and contributes nothing to the semantic component: its primary function is to link the deep structures with the surface structures. Accepting this conception of the function of the transformational component, Weinreich[11] proposes to interrelate syntax with semantics by making semantic symbols appear in a derivation before the last syntactic rule has been applied; semantic features are thus included in the base component of the grammar.

In a close parallel with Chomsky's system, the categorial subcomponent of the base generates preterminal strings; lexical entries from the lexicon (i.e. the other subcomponent of the base) are then inserted into appropriate positions of a preterminal string, thus producing a 'generalized phrase-marker.'

The distinction is made between major and minor classes of morphemes: the major class is an open system with a great productivity constituting usually substantives, verbs and adverbs; the minor class is a closed

system comprising so-called 'function words,' tense affixes, etc. The semantically important point here is that all the members of a major class (say, 'verb') uniquely share a distinguishing semantic feature [+Verb] (which is to be distinguished from the syntactic feature [[+V]]), while members of a minor class (say, 'preposition') have no common semantic feature though they are identified by a syntactic feature [[+Prep]].

A preterminal string and the lexicon are fed as the input into the 'lexical rule' which is so formulated as to guarantee that minor-class symbols be filled only by appropriate minor-class morphemes; the rule, however, does not necessarily require that major-class dummy symbols be filled by proper major-class morphemes. Thus the lexical rule permits not only non-deviant terminal strings but also deviant strings; for example, it may generate 'sincerity may virtue the girl' in which 'virtue' with features [+Noun, -Verb ...] is inserted in a dummy dominated by Verb. It is the function of the 'semantic calculator' that distinguishes non-deviant strings from deviant ones.

The generalized phrase-marker, thus produced through the lexical rule, is now the input to several ordered set of obligatory semantic rules, the violations of which will lead to various degrees of deviations. Among the most significant of the functions of the semantic calculator is the 'construal rule' which serves to eliminate contradictions and impose interpretation on deviant utterances and which, along with the semantic evaluator, assigns 'degrees of deviations' to deviant utterances.

The phrase 'since the book' sounds odd (thus signaling a deviation) because the phrase contains the semantic feature [+Time], which, by a redistributional rule, is then distributed to the noun 'book' dominated by the phrase, and because the 'book' with an inherent feature [-Time] has acquired a

contradictory feature [+Time]. The deviance of the utterance 'a red house occurred twice yesterday' can be explained by invoking the transfer rule which transfers a semantic feature [+Time] of 'occur' to the inherent semantic features of 'house' among which is [-Time].

The construal rule operates in various ways which define 'degrees of deviations' or, in his terminology, deviance markers (DEVs). DEV 1 marks utterances which deviate only slightly and are very easily or uniquely interpretable. For instance, 'scientists study the if' is seemingly deviant, but unmistakably interpretable; a construal rule operates in this way: the deviance is supposed to result from the insertion of a minor category member 'if' (with the syntactic feature [[+Conj]]) in a dummy position dominated by a major category member with the semantic feature [+Noun]; 'the if' is construed as meaning 'the conjunction if': 'if' is now construed into having a [+Noun] together with an inherent feature [+Conjunction], thus regarded as a kind of synonym for a noun with the same feature (e.g. the noun 'condition').

Other contradictory features are less easily and uniformly construed; greater values of DEV (up to 3) are given. The lower limit DEV 0 defines homophonous entries within the lexicon; 'people' with [+Noun] is also construed in some context as having [+Verb]; the construal rule makes both interpretations of 'people' quite non-deviant, thus DEV value 0 being given.

An interesting case is that literary traditions have conventionalized some construal rules with rhetorical or stylistic labels: by the rule 'personification' a lexeme with the semantic feature [-Animate] is construed into having the feature [+Animate]; the transference of [+Abstract] into [-Abstract] (or vice versa) is so common that it can hardly cause deviation, with the result that

we may safely assign DEV 0 value to the rule involved.

The output of the semantic calculator is then the input to the 'semantic evaluator' whose function is primarily to compute a quantitative measure of deviations from regularities. This is the last phase in the characterization of degrees of deviations, but any concrete standard of measuring deviations is hardly available at this early stage to account for native speakers' intuition; his DEV values might serve as an argument of the evaluation function.

Lastly it may be noticed that the 'filtering' function of Chomsky's transformational component finds its counterpart in the deviation theory by Weinreich; just as the application of a certain transformation is 'blocked' under a certain condition, the semantic interpretation of a certain utterance is blocked when the DEV value exceeds the upper limit permitted by the semantic evaluator. The 'blocked' utterances are then relegated to Katz's nonsense utterances.

12.

So far we have not been concerned with the so-called 'factual deviations' deviations supposed to result from inconsistency with the 'real world.' 'De Gaulle is the present king of France' is obviously one example of this kind of deviation. The theory of deviations of this type has something to do with the relation between linguistic utterances and reality. In a strict sense they may not be deviations from linguistic regularities.

But here again we come up against borderline cases. True, there are purely grammatical(syntactic) deviations, but most interesting cases, as we have been seen, involve semantic deviations, and where semantic deviations are involved, there often arises the question whether they are linguistic or extralinguistic ('ontological' or 'aletheutic').

Is Chomsky's notorious 'colourless green ideas sleep furiously' to be banished from a

linguistic deviation? I agree with Bazell [1] that here lies one of the misconceptions of grammaticalness. Undoubtedly a more refined and elaborate theory concerning linguistic and referential semantics will be needed to go into details on this vital problem.

In connection with Bazell's distinction [1] between 'ungrammatical' and 'non-grammatical' utterances, a few remarks may be appropriate. He calls a deviant utterance 'ungrammatical' when it is replaceable by a non-deviant (grammatical) utterance; an ungrammatical 'he seems sleeping' has perhaps the unique grammatical equivalent 'he seems to be sleeping.' On the other hand he calls those deviations 'non-grammatical' which cannot be replaced by grammatical equivalents. It is obvious that his 'ungrammatical' sentences mainly result from the violation of categorial and transformational rules and therefore they belong to proper syntactic deviations which are easily 'corrigible'; whereas his 'non-grammatical' deviations are generated by violating selectional and particularly semantic rules and belong to (syntactico-) semantic deviations which are not so easily corrigible as their ungrammatical counterpart.

It would, however, be an overstatement to declare that his 'nongrammatical' sentences are not corrigible. Katz would say that the 'comprehension set' of a non-grammatical deviation has more members than that of an ungrammatical one. In terms of Weinreich's theory, a deviance marker has a higher value in the former than in the latter.

13.

By way of a summary of this fragmentary note on theories of deviations, a very rough attempt will be made to classify deviant utterances. Our survey throughout this discussion supports Weinreich's remark that the attempt to classify deviant utterances neatly into only grammatical deviations and only semantic deviations is a futile enterprise,

since the most significant class of deviations is grammatical and semantic at the same time. It may also be wrong to view deviations as arrayed in a continuous order from grammar to semantics.

Deviant utterances, then, would best be classified by the rules which have been violated in the process of generating utterances. Violations of transformational (and morpho-phonemic or morpho-graphemic) rules give rise to the most obvious type of syntactic deviations; they may be regarded purely grammatical deviations and easily 'corrigible.' Apparently syntactic deviations also result from violations of subcategorization rules; here the greater the deviation is, the higher in the subcategorization hierarchy the rule violated is. These deviations may be regarded as predominantly syntactic, but semantic features are clearly involved, which fact enables the construal rules to interpret the deviations. Violations of selectional rules yield most interesting and (from a literary point of view perhaps) significant deviations; they are obviously both syntactic and semantic deviation; various construal rules are brought into play and interpretations are imposed on deviations. Lastly as purely semantic deviations may be mentioned those arising from violations of rules in the semantic calculator; they are semantic because inherent semantic features of lexemes are disregarded (often intentionally) and figurative

(or transferred) interpretations may be given. (August 1967)

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