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# Semantic Mechanisms of Humor

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0. Introduction-cum-Summary. Recent developments in semantic and pragmatic theory and practice, viz. interpretive and generative semantics, presuppositional analysis, truth-conditional and possible-world semantics, speech act theory and implicatures, etc., have contributed significantly, though not conclusively, to the study of the linguistic and extra-linguistic context of the utterance. It is maintained throughout this paper that these and some other developments have set the goals of semantics (and pragmatics) so much higher than it was thought possible only a decade ago that it should not seem absurd to undertake a semantic investigation of humor. The problems involved in formal analysis of humor should not exceed in contextual complexity those of the above-mentioned methods and approaches. Both in terms of feasibility and in terms of the ontological commitments, a study of humor of the kind presented here is comparable to other contemporary semantic/pragmatic ventures.

The linguistic study of verbal humor is undertaken here, against the background of those recent developments, as an application of a tentative formal script-oriented semantic theory. On this theory, the lexicon entries for the constituents of a sentence call for certain scripts out of a finite repertoire. The scripts are thought to represent the "common sense" cognitive structures stored in the mind of the native speaker. Unlike in artificial intelligence (computational semantics), the scripts are motivated and justified in terms of grammaticality-cum-meaningfulness-cum-appropriateness. The scripts are designed to describe certain standard routines, processes, etc., the way the native speaker views them and thus to provide semantic theory with a restricted and prestructured outlook into the extra-linguistic world. It is never argued that it is feasible, or even theoretically possible, to provide a complete "scriptization" of reality. However, no claim to the contrary is made, either.

The semantic interpretation of a sentence is defined on a set of all the compatible combinations of the scripts invoked by the constituents of the sentence as a (partial) realization of any one of these combinations.

The object of the research is verbal humor. The purpose is to develop a formal semantic analysis in terms of which each joke-carrying text would be identified as possessing a certain semantic property such that the presence of this property would render any text humorous. The main hypothesis is that this humorous element is the result of a partial overlap of two (or more) different and in a sense opposite scripts which are all compatible (fully or partially) with the text carrying this element.

The first part of the paper is devoted to general information about humor as a phenomenon and to the problem of the applicability of some recent developments in semantics/pragmatics directly

to the analysis of verbal jokes. The second part introduces the notion of a script-oriented semantic theory which is then applied to humor. A few examples of party jokes, English limericks and Russian chastushkas are analyzed in terms of overlapping scripts. A possible source of counterexamples is indicated.

For reasons of space a not entirely consistent attempt has been made to keep the paper as self-contained as possible and the number of references is reduced to an absolute minimum. For the same reason, the examples of jokes in this paper have been selected mostly for their illustrative rather than purely humorous qualities. (Further information on the subject and somewhat better examples of jokes are provided in a monograph, now in progress, with the same title.)

## Part 1. Humor ± Semantics

1.1. The nature of humor. Humor as a phenomenon, its philosophical, psychological and physiological nature, its aesthetic value, its relation to truth, ethical standards, customs and norms, its use in literature, its dependency on the society and culture have occupied the minds of a great number of thinkers for centuries. Attempts have been made to explain humor in various ways: as a ridicule of a human fault or error, but not too serious, because then it would not be an appropriate cause for laughter (Aristotle), as an exhibition of superiority over somebody else but again, not too serious (Stendhal), as an attempt to abase, denigrate a person or a cause of high stature (Bain) or to lower a value (Propp, Stern), as a metamorphosis of tense expectation into nothing (Kant), as a switch of one's mind and attention from something big and significant to something small and insignificant (Spencer), as an incongruent treatment of things, in deviation from the customary norm (Hegel, Schopenhauer). The purely human character of humor was somewhat chauvinistically emphasized (Bergson) - a property humor seems to share with lying.

All these attempts to account for humor tended to treat it holistically and generally and, naturally, no formal analysis of the linguistic aspect has ever been undertaken. Freud (1905) came the closest to such an analysis in his observations on the nature of verbal humor and in his classification of its types. Thus, his very first example of a joke (1) is aptly described as a result of a condensation of the two similar German words, familiär 'as an equal' and Millionär 'millionaire' (pp.47-51). The terms he uses in his classification (condensation, multiple use of the same material, double meaning) are rather vague and do not account for all the techniques which are used in jokes, and there is a heavy emphasis on what amounts basically to lexical ambiguity as virtually the only source of humor, both in his examples and in his comments.

(1) he treated me quite famili on är
(milli) (är)

Naturally, Freud's methods, goals and frame of reference are radically different from the present approach. However, the one thing the latter shares is Freud's interest to linguistic mechanisms underlying humor.

1.2. Humor and recent developments in semantics. Many jokes can be successfully explained in terms of the semantic notions which have emerged in the last 10 to 15 years. Thus, if presupposition is thought of in terms of enablement, i.e. as one of those statements which should be true, or one of those conditions which should obtain, or one of those states of affairs which should have taken place, in order for the sentence in question to be comprehensible, appropriate, etc. (for further discussion of this notion of presupposition, which seems to include both the "logical" presupposition and most of the "pragmatic" presupposition, see Raskin, 1978a, Section 5), then many jokes are based on the knowledge of a presupposition shared by the speaker and the hearer(s). Thus, (2), also quoted by Freud, would not be funny or even comprehensible if the speaker and the audience did not share a certain presupposition which may be tentatively presented as (3).

(2) This girl reminds me of Dreyfus, the army does not believe in her innocence.
(3) Dreyfus was a French officer accused of treason. The army thought him guilty while many others considered him innocent. He was tried, convicted and imprisoned.

It should be noted that while Dreyfus was later rehabilitated it was not known at the time the joke was made and used, and had it been known the joke would have lost most of its value since the same analogy would then lead to the conclusion that the girl's innocence was also restored. Allusion of this kind is a typical process within the general framework of semantic recursion (see Raskin, op.cit., Section 4) and an allusion to Dreyfus nowadays would elicit information about injustice, antisemitism, scapegoats, etc., which would be completely foreign to the simple frivolous joke in (2).

If implicature is construed as using a sentence not in its literal meaning many jokes can be explained in terms of implicature, e.g., (4), where the second sentence really means something like (5).

(4) "My wife used to play violin a lot but after we had kids she has not had much time for that." - "Children are a comfort, aren't they?"
(5) Your wife cannot possibly play violin well so it is a comfort to you that she does not any more and you owe it to your children.

If possible worlds are understood in the usual superficial way as minor "impossible" deviations from the "real" world, many

jokes can be treated in terms of possible worlds, e.g., (6).

(6) A man objects to the price a prostitute has charged him, and attempts to have intercourse with her violently in and around her navel, shouting, "At these prices, I am going to make my own goddam hole!" (Legman, 1975, p.295)

Even if the applicability of these and perhaps other semantic notions to a large number of jokes can be proven - and this depends on the postulation and justification of an explicit framework for each of the notions - this would still fall short of the goal of this paper. At most (and with luck) those notions would contribute to the formulation of (partial) necessary conditions for the text to be humorous while this paper is concerned with the necessary and sufficient conditions.

Speech acts have been formulated since they were systematically introduced by Searle (1969) as the sets of sufficient and necessary conditions for assertions, questions, promises, etc. It is not too difficult to propose a definition of the speech act of making a joke (7), the way it has been done for other types of utterances, even though all the usual speech acts (see, for instance, Searle, op.cit., pp.66-67) were defined for the bona fide communication mode only and joking, just as lying again, exists outside this mode.

(7) Proposition Content: A proposition p or set of propositions P
Preparatory Condition: 1. S considers p or P appropriate to the situation
2. S is not committed to the literal truth of p or P
Sincerity Condition: S considers p or P funny
Essential Condition: Counts as an attempt to make H laugh

However, this treatment of humor would not be revealing or enlightening, either, since as all the other speech acts (and for that matter, most of the philosophy of language) (7) is an example of what I call "reductionist taxonomy", which comprises attempts, often quite respectable, to reduce a large set of very diverse notions to a much smaller set of more basic notions, where the latter are usually indiscriminately considered to be "intuitively given". To become a part of formal linguistics, with its aspired, even if possibly unachievable level of explicitness (see Raskin, 1978b), each of the underlined notions of (7) needs a formal definition some of which would turn out to be circular and others infinitely regressive.

We will seek a solution of the problem in the framework of a script-oriented semantic theory. In this paper we will not be able to demonstrate that some of the notions mentioned in this section are, in fact, built into the theory at the necessary level of formalization.

## Part 2. Humor and Scripts

2.1. Script-oriented semantics. It is argued here (and further elaborated on elsewhere - see Raskin, 1978a, Section 4, and 1971, Ch.4) that our understanding of the sentence, or our calculation of its semantic interpretation (meaning), depends, among others, on the two sources, the lexicon and our knowledge of certain things about the world we live in. It was the largely negative experience of early machine translation which proved that the demarkation line between the "dictionary" and the "encyclopedia" was not at all clear, though perhaps this is not how this result was viewed at the time (cf. Bar-Hillel, 1964, pp.176-177). There has been some doubt, and much controversy, in recent semantic theory as to how much of the encyclopedia should, in fact, go into the dictionary, though again, the problem has not always been formulated in these terms (see, for instance, Weinreich, 1966; Bar-Hillel, 1967; Bar-Hillel and Raskin, 1975). It seems obvious that the comprehensibility of sentences (7'a), (8a) and (9a) and, more specifically, the correct usage of and in them depends on our knowledge of certain extra-linguistic facts, viz. the basic "commodities - money - commodities" formula, the fact that "black cats are unlucky", and that in some cultures men (still) stand up when women come into the room, respectively. The absence of any such structures for the (b) sentences in (7'-9) renders these sentences incomprehensible or at least not entirely comprehensible, and and in them inappropriate.

(7') (a) John was a dime short and had to do without milk
(b) *John was a dime short and had to do without family
(8) (a) Mary saw a black cat and immediately turned home
(b) *Mary saw a black cat and immediately sent the letter
(9) (a) Mary came into the room and all the men fell in love with her even before they sat back
(b) *Mary came into the room and all the men fell in love with her even before they sneezed

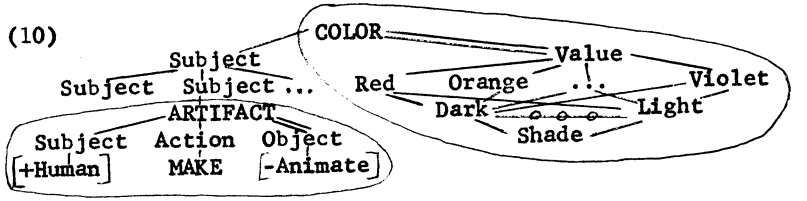
It appears that a certain repertoire of cognitive structures is stored in our minds just as the meanings of the words of the language(s) we speak are internalized by us. These cognitive structures may constitute what is loosely labelled here "common sense" and may represent our knowledge of a number of certain routines, standard procedures, basic situations, etc., or in still other words, our knowledge of what people do in certain situations, how they do it, in what order, etc. (The vagueness of the terms here does not mean that the notions do not exist.) We will be referring to these cognitive structures as 'scripts'.

The lexicon associated with a script-oriented semantic theory consists of the lexical entries directly invoking the script(s) with which the lexical item is compatible. Thus, bachelor may invoke such scripts as MARRIAGE and ACADEMIA, among others, or perhaps more elementary scripts on which these two may be based. The

script information is just that part of the encyclopedic knowledge which must be let into the lexicon to ensure the comprehensibility of the sentences. It is emphatically asserted that resorting to scripts in the lexicon does not constitute any stronger ontological commitment that the commitment involved in the compilation of any formal lexicon.

Technically, scripts may be represented as trees named after their dominating nodes or more precisely, as certain underlined nodes of graphs with their immediate environments (in block letters in (10) - encircled are the entries for the lexical items color and artifact in the lexicon).

(10)




However, below they will be represented informally in terms of certain conceptual slots and fillings and their format, justified elsewhere, may be considered arbitrary for the purpose of this paper.

The semantic interpretation of the sentence is calculated on the set of one or more combinations of scripts compatible with all the lexical items making up the sentence. Thus, to combine two hackneyed examples, the 12 scripts of (12) seem to be invoked by the lexical items of sentence (11) and the 25 compatible combinations of them (13) out of the 64 theoretically possible must correspond to the 25 readings of the sentence. The process of the calculation of the compatible combinations of scripts is not unlike (even if more complicated than) the notorious process of amalgamation in interpretive semantics and some such process seems inevitable - even for the calculation of the meaning of the simplest sentences corresponding to the elementary formulae of predicate calculus so favored by what used to be generative semantics ( and certainly, for the calculation of the meaning of this sentence!). Needless to say, the names of the scripts in (12) should also be considered, within this paper, as arbitrary.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| (11) | The | paralyzed | bachelor | hit | the | colorful | ball |
| (12) | | 1.DISEASE<br>2.MORAL | 1. MARRIAGE<br>2. ACADEMIA<br>3. WARFARE<br>4. ANIMAL | 1.COLLISION<br>2.DISCOVERY | | 1. COLOR<br>2.EVALUATION | 1.ARTIFACT<br>2.ASSEMBLY |

(13) 11111, 11112, 11212, 11222, 12111, 12112, 12212, 12222,
13111, 13112, 13212, 13222, 14111;
21111, 21112, 21212, 21222, 22111, 22112, 22212, 22222,
23111, 23112, 23212, 23222.

Three examples of scripts are presented in (14-16). Two of

them, (14) and (15), are going to be used in 2.2 for an analysis of a joke (18). It should be noted that (16) is a more elementary script than, say, (14) since the latter includes it. Such a relation between scripts, i.e. elementary VS non-elementary, is not at all unusual, which should have become clear from (10) - see also below. ('>' in time refers to the past, '=' - to the present.)

(14) DOCTOR
Subject: [+Human] [+Adult]
Activity: >Study medicine
=Receive patients: patient comes or doctor visits
doctor listens to patient's complaints
doctor examines patient's body
=Cure disease: doctor diagnoses patient's disease
doctor prescribes medicine
=(Take patient's money)
Place: >Medical School
=Patient's home or doctor's home or doctor's reception room or hospital
Time: >Many years
=Every day
=Immediately
Condition: Face to face

(15) LOVER
Subject: [+Human] [+Adult] [+Sex: x]
Activity: Makelove
Object: [+Human] [+Adult] [+Sex: $\bar{x}$]
Place: Secluded
Time: >Once
=Regularly
Condition: If subject or object married spouse(s) should not know

(16) HOME
Subject: [+Human]
Activity: To live in:
IN: To have family there
To take meals there
To sleep there
To receive guests
To stay in when nothing to do
OUT: To go out when something to do
Object: Artifact, Space inside
Place: Settlement
Time: Long
Condition: Own

(Note the culture- and subculture-dependency of the scripts, especially, (15).)

Systematic attempts are made to motivate and justify the semantic material of the scripts in terms of the non-well-formedness, according to the notion of grammaticality-cum-meaningfulness-cum-

appropriateness, of those sentences which are incompatible with at least one notion in the fillings. A few such non-well-formed sentences contradicting certain rubrics (in parentheses) of (14) are listed in (17).

(17) (i) This kestrel is our village doctor (Subject)
(ii) After elementary school I took a three-week crash course and became a doctor (Time)
(iii) Our village doctor has never treated a patient in his life (Activity)
(iv) A deaf doctor is the best doctor (Activity)
(v) Our doctor never examines his patients (Activity)
(vi) Our doctor never knows what is wrong with you (Activity)
(vii) I am not going to cure you, I am a doctor (Activity)
(viii) As your doctor I would like very much to finally meet you after 40 years of active correspondence (Condition)

2.2. Semantic mechanisms of humor. It is claimed here that much of verbal humor depends on a partial or complete overlap of two or more scripts all of which are compatible with the joke-carrying text. Thus, (18) is readily representable as a partial overlap of (14) and (15).

(18) "Is the doctor at home?" the patient asked in his bronchial whisper. "No," the doctor's young and pretty wife whispered in reply. "Come on right in."

The underlined elements constitute the trigger which serves as a signal that a competing script should be discovered and taken into account for the comprehension of the text. At No, (18) loses its compatibility with (14) and becomes compatible with (15) instead. We will not have anything to say here about the heuristic strategy of humor, i.e. how and where to look for the right competing script.

The popularity of (equally uninspiring) jokes based on the polysemy/homonymy of certain lexical items as in (19) and (21) is easily explained in terms of the underlined elements serving as regular and obvious triggers (calculable from the lexicon - though in (21) some syntactic ambiguity is also involved) between the pairs of scripts in (20) and (22), respectively, none of which, it should be noted, is elementary.

(19) The Junior String Quartet played Brahms last night. Brahms lost.
(20) MUSIC $\prec$ SPORTS
(21) An English bishop received the following note from the vicar of a village in his diocese: "Mylord, I regret to inform you of my wife's death. Can you possibly send me a substitute for the weekend?"
(22) CHURCH $\prec$ SEX

It appears that the worst and most shallow jokes render them-

selves readily to such an analysis. What seems to take place is that only such jokes are the result of an overlap of just two more or less elementary scripts. More usually, and leading to better though much more complicated jokes, several overlaps occur simultaneously, often in a certain hierarchy. Thus, in (23) the joke seems to be based on three overlaps (24), based in turn on two ambiguities.

(23) "Any big men born round here?" a tourist asked in a condescending voice. "No," responded the native. "Best we can do is babies. Different in the city, I suppose."

(24) (i) born (BIRTH : LIFE (after birth))
(ii) big (SIZE : FAME)
(iii) (CITY : VILLAGE)

The function of the ambiguous words as the triggers of numerous jokes is made especially explicit in the modern Israeli joke (25) where the character, Dudu, a minister in the government and the target of dozens of silly jokes in 1977-78, mistakes one disambiguating complement of the polysemous verb nosea 'drives, travels', yaguar 'Jaguar', for another, yanuar 'January' - presumably out of ignorance. (The joke is further complicated by two secondary overlaps of less elementary scripts.)

(25) "Dudu, haim ata yodea shehaozer shelkha nosea beyaguar?" "Az ma? Nosea beyaguar - yahazor befebruar." "Dudu, do you know that an assistant of yours drives a Jaguar?" "So what? He is travelling in January and coming back in February."

While an overlap may well be an important necessary condition of humor it is less than sufficient since an overlap of any two scripts does not necessarily produce a humorous effect - cf. (11). The two overlapping scripts should be opposite in a certain sense, only in this case they will produce the unexpected effect frequently emphasized by many thinkers mentioned in 1.1. What exactly it takes for some two scripts to be distinct or opposite enough so that their overlap would produce a humorous effect is one of the central issues of the approach. Most of the observed overlaps are easily explained in terms of the oppositeness or distinctness of certain semantic features of the scripts. However, it is much more interesting to be able to predict the funny combinations on the basis of certain relations between the involved scripts rather than to perform such an analysis retroactively. In this paper we will be able to deal briefly only with the simplest case when such a prediction seems to be working quite well.

It seems that there is a number of standard universally "funny" scripts which always produce a baser and more primitive kind of humor when overlapping with most other scripts. These scripts usually involve some obscenity and are largely language-independent. Thus, in (26) the described event is not at all funny

and the only thing which may be claimed to produce a humorous effect, if any, is the overlap of the script ACCIDENT with the universally "funny" script EXCREMENT.

(26) There was a young man of Loch Leven
Who went for a walk about seven.
He fell into a pit
That was brimful of shit,
And now the poor bugger's in heaven. (Legman, 1976, p.99)

(Here and elsewhere we ignore, at a certain price, the nonsemantical aspects of humor.)

A similar function is frequently performed by another standardly "funny" script, SEX, which is solely responsible for whatever comical effect there is to the Russian equivalent of the limerick as a genre, chastushka, in (27).

(27) Traktorist ty, Jaška,
Pod toboju tjažko.
Pogljadi-ka na mežu:
Pravil'no li ja ležu

Tractor driver Grisha,
Don't feel right beneath you.
Down the furrow take a sight,
Check up that I'm lying right.
(Rendered into English by Dr.Gerry S. Smith of the University of Birmingham)

It should be noted that both (26) and (27) are easy on obscene words. What renders (28) hilariously funny for the less sensitive and completely unprejudiced Russians is the rich combination of the two obscene scripts actually overlapping with each other plus a selection of obscene words.

(28) Kak u našem u kolxoze
Ebut devok u navoze.
Ix ebut, oni perdjat -
Bryzgi v storonu letjat.
(Kabronskij, 1978, p.53)

In our kolkhoz they fuck girls in manure. They fuck them, they /the girls/ fart and splashes fly around.

The less elementary are the involved scripts, i.e. the higher up are they in the hierarchy of the available scripts, the more complicated is the analysis of a joke and, quite often, the better is the joke. It is likely that a similar hierarchy can be observed among the clichés of a language. It is argued that the clichés are also a suitable target for the script analysis. What links the clichés to humor immediately is that one of the most complicated kinds of verbal humor uses verbal clichés of a higher level parodically. It is such sophisticated jokes (or antijokes?) as (29) which make any attempt at their script analysis so cumbersome that they should, in fact, be considered counterexamples.

(29) A man sitting in his living room in front of a TV set turns to his wife and says, "Funding for the 'Dick Cavett Show' has been provided by this station and other public-television sta-

tions, and by a grant from the Chubb Group of Insurance Companies, with additional funding from Allen Services Corporation."

(A verbalization of Stan Hunt's cartoon, The New Yorker, Vol.LIV, No.52, February 12, 1979, p.31)

Certain modifications of the theory are being contemplated to accomodate such and other counterexamples.

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