Text Generation Strategies for the Future of Digitalization of Experimental Data

Gridina T.A.

Ural State Pedagogical University, Yekaterinburg, Russian Federation
Email: tatyana_gridina@mail.ru

ABSTRACT

The article substantiates the possibility of using a psycholinguistic experiment to analyze text generation strategies as an integral component of speech activity. The experiment is based on the techniques presented in the structure of the method of probabilistic forecasting and adapted by the author of the article to the research tasks. A step-by-step procedure has been developed to supplement the sentence based on a set of stimulus word forms with subsequent use by the respondents of the obtained experimental "sample" to create text. The hypothesis was verified, according to which the grammatical form of a word is fixed in consciousness not in isolation, but with typical contexts of its use, which determines the linguocognitive conditionality of speech production strategies. According to the experiment, definitional and syntagmatic strategies based on the same presuppositions, but transmitting different forms of linguistic processing of information relevant to the speaker, are distinguished as the leading strategies for completing the utterance and generation of text. The influence of the stimulus word form on the character of the design of thought and the syntactic organization of the utterance is established. The definitional strategy, which is correlated with the initial form of the word, unfolds (describes) a certain gestalt, revealing typical vectors of the conceptual content of the verbal stimulus as static fragments. The syntagmatic strategy of understanding word forms actualizes scenario presuppositions representing the concept in dynamics. The linguo-creative component is recognized as a special vector of textual competence, which makes it possible to apply the proposed experimental procedure for text generation and as a training resource, which
to a large extent contributes to the spontaneously arising, and / or specially set installation for a language game, which requires a conscious switching of associative stereotypes. The individual associative processing of typical presuppositions associated with the use of words in text projection creates broad prospects for speech writing. The identified text generation strategies can become the main one for creating digital versions of programming typical sentences on a given topic both for the purpose of teaching the Russian language (including foreign) in school and university practice, and for the purpose of diagnosing stereotyping or originality of texts functioning in the space of modern communication.

Keywords: *speech activity, psycholinguistic experiment, text, digitalization, creativity*

1. INTRODUCTION

1.1. In the modern scientific paradigm, an interdisciplinary approach to the study of communicative processes is becoming increasingly important. The subject of psycholinguistics as an integral science of speech activity is primarily the subject of this activity, who realizes his communicative intentions in different situations of speech generation and speech perception. Accordingly, this requires studying the mechanisms of verbal thinking as "translating the original intention and meaning into the final product - the text" [Norman 2011: 8].

1.2. The psycholinguistic analysis of the mechanisms of text formation is based on the postulate that cognitive structures of consciousness are the basis of language acquisition and possession. Accordingly, "... operations with verbal signs are a projection of knowledge about the world - the dynamic actualization of meaning as part of social social experience that has become the "property" of a particular individual, "personal meaning" ("meaning of meaning" for the speaker) and "sensory fabric", perceptual experience" (see [Leontyev 1975: 84]). "These zones of meaning in a psychological sense are correlated with the concept of the associative potential of a linguistic sign as the totality of all reactions of a formal and semantic property that can cause a certain verbal stimulus in the minds of specific native speakers. In relation to the problem under discussion, it seems important that the associative potential of verbal signs (words, word forms, etc.) largely determines both the formal and the meaningful plans of the future utterance" [Gridina 2012: 18-34].

2. FORMULATION OF THE PROBLEM

2.1. Textual competence, "... it would seem a matter-of-fact condition for using the verbal code, however, is not genetically defined and is formed gradually (acting as the highest point of the ontogenesis of speech development). Submitting to the laws of the linguistic system of the language and being a functional representation of different levels of linguistic ability, it is the generation of text that displays both stereotyped and uniqueness of the speaker's personality (the projection of his image of the world in linguistic expression) "[Gridina 2015: 148-157]. See, for example, an analysis of the linguo-creative aspects of text generation in the field of children's speech [Tin 2011; Smogorzewska 2014; Cekaite 2018; Konovalova 2018].

2.2. In the process of speech-cognitive activity (at the stage of verbalization of thought), the speaker "does not just accept the help of the language, but is unable to resist its influence by choosing those units that are prompted by the rules of combinatorics" [Norman 2011: 79-84]. The action of the factor of automatism in the field of text generation is one of the manifestations of the universal law of saving speech efforts, which, however, does not exclude the creativity of native speakers in using its potential. In the current linguistic situation - due to the widespread use of various forms of mass linguistic creativity - an appeal to the mechanisms and strategies of text generation is extremely relevant. Modern students and schoolchildren who are "infected" with a visual-clip style of thinking often find themselves helpless in the technique of creating expanded verbal texts, cannot formulate a thought accurately, use semantically empty speech cliches both when generating oral and written text.

3. RESEARCH QUESTIONS

3.1. The ratio of "stereotype and creativity" in the text generation register requires experimental verification.

Based on the postulate that "behind every text there is a linguistic personality who owns a language system" [Karaulov 2003: 27], one can diagnose the level of textual competence of speakers taking into account their cognitive, intellectual and linguistic experience proper. In the development of linguo-creative abilities, algorithmic digitalization of typical models and text generation mechanisms can play a large role. The development (description) of such text-generating algorithms as applied to specially simulated situations of speech activity in the experimental mode is an independent research problem.

4. PURPOSE OF THE STUDY

A special vector of textual competence is its linguo-creative component, which is greatly facilitated by the installation of a language game that encourages speakers to "overcome" associative stereotypes. This determines the need for testing psycholinguistic technologies of text generation in the light of their diagnostic and training orientation.

5. RESEARCH METHODS

5.1. A productive psycholinguistic technology for studying the mechanisms of text generation is the technique of completing a statement, which suggests the possibility of identifying predictable and unpredictable versions of text generation. The classic application of this technique is associated with the identification of syntactic variations of verbalizable content. "It turns out that the same beginning of the proposal can have different extensions: *The director appealed to the school staff. The director dismissed the negligent engineer. The director was a very young man*. Such experiments contribute to a better understanding of the mechanisms of syntactic organization of speech and acceptable variants of language structures "[Belyanin 1997: 146-147]. It seems that "the interpretation potential of this technique is much wider. The basis for such a statement is that in a productive (text-generating) activity, the principle of probabilistic forecasting finds support on presuppositions associated with typical representations that speak of a designated fragment of reality. This makes it possible to use the technique of completing the statement "[Gridina 2012] for diagnosing the textual competence of respondents, taking into account the probabilistic vectors of grammatical and semantic actualization of the stimulus word form. As a variant of this technique, we developed a procedure for completing utterances on a set of stimulus case forms of the same word, followed by creating a text based on the obtained experimental "sample".

5.2. The **hypothesis** was verified that "text-generating strategies, in terms of their cognitive and linguistic conditionality, should be dependent on the grammatical form of a given stimulus. This assumption, in particular, is based on data from directed associative experiments revealing the fact that introducing grammatical restrictions into a given stimulus (presenting a stimulus in a certain morphological form or as part of a syntactic construction) significantly changes (focuses) the set of reactions received from respondents. Accordingly, changing the grammatical form of the stimulus word, one can actualize various aspects of the text-generating activity of the subjects. In addition, this experimental technique allows, on the one hand, to clarify the set of predicted (stereotypic) reactions in the associative field of the stimulus word, on the other hand, to identify non-standard associates and their role in creating the individuality of the generated text "(see in more detail [Gridina 2012 : 18-34]).

6. RESEARCH RESULTS

At the first stage, the respondents had to create *detailed statements* that were correlated with different word forms of the WINTER stimulus; at the second stage, *to construct*

a whole text of these statements (it was allowed to arbitrarily change the sequence of presentation of stimulus word forms, to "rearrange" the text). The method of assembling text on the principle of sequentially joining primary statements to each other and / or reformatting them is indicative of the participation of divergent and convergent thinking in the processes of text generation..

The respondents were students of IFMK Ural State Pedagogical University. The following word forms were proposed as incentives for the development of utterances: (1) Winter; (2) in winter; (3) In winter, when; (4) When the winter; (5) In the winter; (6) In the winter ...

Based on the data obtained, two main strategies for completing the statement were identified. The first is designated by us as *definitional*, the second - as *syntagmatic*. The definition of the type of strategy in relation to each specific statement was made on the basis of the initial "associative step, which included the stimulus in the composition of the corresponding grammatical construction. In the first case, the stimulus is processed according to the principle of paradigmatic classification (general - particular, type - type, type - gender, etc.), in the second - according to the principle of syntagmatic combinatorics "[Gridina 2012]. The definitional strategy, correlating with the initial form of the word, unfolds (describes) a certain gestalt, revealing typical vectors of the conceptual content of the word as static fragments. A syntagmatic strategy that is not related to the initial form of words actualizes scenario presuppositions representing the concept in dynamics.

6.1. Options for completing a phrase with the initial form of the stimulus word (1) and implemented text generation strategies.

The definitional strategy is presented in our material in the following typical contexts: Winter ... - *the time of year when nature begins to fall asleep, the sun shines dimly, a person feels cold and hibernates* "(updating presuppositions:" winter is a cold season when nature seems to fall asleep "; the metaphor of hibernation - about a bear *falling asleep* for the winter in his lair, is the basis for characterizing a person's physical condition in winter). Here the exact opposite version of the definition of a given stimulus: Winter - *the best time of the year, fluffy snow, an invigorating frost, New Year, Christmas tree, roller coaster*" (updating emotionally colored presuppositions" the beauty of the winter landscape "," winter fun "," celebration of the new year ";" Vigor from being in the cold "). Winter is what replaces rainy autumn, and finally there is snow underfoot, and not dirt (presupposition, referring to the most frequent associate of the stimulus word). Winter is when *the first snow falls. When children play snowballs. When snow women are sculpted* (parcel syntactic deployment of a phrase with a temporary conjunction *when* reflects the psychological mechanism of recall).

The definition strategy is expressed in the fact that the stimulus word (in its initial form) acts as a thematic marker of the contextual situation *"change of seasons*: the onset of winter, its weather" signs, here *evaluation vector* - "good / bad / cold season", *aesthetic vector* -

"landscape", *personal emotional vector* - "mood, physical condition of a person"). Respondents primarily use syntactic cliches: complex sentences with different kinds of subordinate clauses ("winter is *the time of year when* ...", "winter *is that* ..."). Often the text is built on the model of the CSI with a single microtopic.

An interesting option is the implementation of this strategy, which reveals the case-by-case actualization of the meaning of the stimulus word (the probabilistic forecast for the appearance of such versions of the completion of a statement is associated with both subjective and typed presuppositions).

The following microtext is indicative in this respect: WINTER ... "*frost and sun*", almost like Pushkin's. And - cheers! This "*wonderful day*" is my birthday! (an allusive reference to the famous poem serves as the basis for the respondent to express the personal meaning of the word: "winter is the approaching birthday"). Using a stimulus word form as a nominative topic can be regarded as an indicator of the definitional strategy of building the text. The transformation of the quotation has the character of a language game..

The *syntagmatic strategy* of text generation "fits the stimulus word into a certain dynamic plot by means of a grammatically formed connection with an associate (most often a verb word form)" [Gridina 2012]. See, for example: *Winter comes to our city with the first snow. The birds fall silent. The days are getting shorter* (the concretization of the *scene* acts as the subjective aspect of understanding the contextual presupposition). *Winter begins with the advent of cold weather and snow* (a typical frame for changing seasons). Compare poetic expression of the same presupposition: *Winter will imperceptibly come with cold, and the birds will suddenly disappear somewhere. And only trees will wear elegant dresses from snow to wear patterned branches* (our text - T. G.)

Thus, in the production of statements on a given stimulus (nominative case form), the respondents essentially describe the frame content of the WINTER concept (based on stereotypic and subjective-personal aspects of perception of this grammatical form of the word).

6.2. 6.2. Variants of the completion of phrases with a stimulus-word form of the indirect case demonstrate the specifics of the associative perception of each of them in the light of the details of the dominant given by the initial form. We give selectively examples illustrating this thesis. Options for completing phrase (2) with a stimulus winter reveal a connection with typical syntagmatic associations. Moreover, "in the substantial and formal, superficial structure of the utterance, tendencies toward element-wise processing, literalism <or> toward phraseological units, idiomatization, metaphoricality" are manifested [Sugar 2004: 292]. The literal actualization of the everyday meanings of stimulus word forms, supported by their typical lexical compatibility, is carried out in direct reference to the designated fragment of reality or the state experienced by the subject of the utterance. Compare: *In winter, intricate patterns appear on the frozen windows. I do not want to go out from the house to the cold. People wrapped in warm coats and scarves almost run not to*

freeze ("the stimulus word form acts as a semantic and grammatical brace of all elements of the speech chain" [Gridina 2012], revealing the contents of the presumption "winter - cold season"). The same presupposition is presented metaphorically: *In winter, rivers and feelings freeze from frost* (the connection in the same syntagma of the direct and figurative meanings of the verb, zevgma). "Figures of a creative connection, when the speaker consciously collides semantically heterogeneous concepts with a common definition for them," give the addressee "additional intellectual work, which brings, however, aesthetic satisfaction" [Norman 2011: 127]. Compare verbal expression of the same presupposition through reference to a precedent (song quote from the film "Wizards"): *In winter, when "the rivers cooled down and the earth cooled down", time seems to stop - you live like frozen for three months.* "

Options for completing the phrase (3) represent a verbal processing of the cognition "signs of the onset of *winter*", which is provoked by the compatibility of the stimulus with a temporary conjunction *when*, etc. Compare: *In winter, when everything is covered with snow and the birds have already flown away, "quiet courtyards" fall asleep* (a metaphorical fragment of the phrase translates the presented situation into a personal plan with the help of a kinesthetic metaphor-personification). Compare other versions of the lexical-semantic filling of the phrase: *In winter, when it snows, the frosty air is surprisingly fresh and tasty. In winter, when you look at pure snow, you understand what you have been waiting for all summer* (the basis for generalization is the aesthetic experience of beauty and harmony in nature).

Options for completing phrase (4) refer to presuppositions related to the motive for changing the seasons, waiting for the end of a long winter and anticipation of the arrival of spring: *When the winter ends, you acutely feel a change in mood and wait for spring warmth. When winter recedes, I want to love again, etc.* Another vector for completing this phrase, on the other hand, is associated with the expectation of the arrival of winter: *When winter "takes its rights," don't be upset: you can finally go skiing, ice-skating, sledding down the hill, and the most magical winter holiday - New Year! / When will winter finally come? So "I want" white snow, frosty blue day "!* (paraphrased line from the song of Oleg Gazmanov).

Options for completing the phrase (5) "reveal the functional homonymy of the stimulus word form, which defines different forecast vectors of its textual actualization: the possibility of perception as a circumstance of time (in an adjective meaning) or as a prepositional case of a noun with an object value (acting as a complement function)" [Gridina 2012]. Compare: *In winter, it's time to put on the shackles of boots, fur coats and mittens, and you feel like cabbage ... / In winter I always go skiing in the forest.* There are cases of grammatical homonymy of the stimulus word form: They judge the summer *by winter* "(according to whether it was warm or cold, winter was predicted what the summer would be and vice versa).

Options for completing the phrase (6) reveal the perception of the stimulus in the personified manner: *Winter has a severe character. / Winter has crystal eyes! / Winter has its own harbingers, "its messengers" - snow and wind* (antonymic rephrasing of the line of their poem by A.N. Nekrasov "Green Noise." Compare *"We are young spring messengers, she sent us forward ..."*). Only some microtexts with this stimulus do not contain such metaphors and are a form of everyday description of the changing seasons: *Winter has two stages. With its arrival, we feel a breakdown, deterioration of mood, and then with joy we celebrate the New Year and wait for spring. / Winter, like any season, has its merits: snow, Christmas tree, New Year / Winter has an end.* "

7. CONCLUSIONS

The texts submitted by the respondents based on the totality of the previously obtained options for completing the utterance for the given stimulus word forms confirmed the experimental hypothesis regarding the influence of the syntactic form of the stimulus word on the character of the completion of the utterance and the choice of a text-generating strategy.

7.1. The analysis of texts "allows us to judge the operational mechanisms of their generation:

1) assembly of text from ready-made blocks - in the sequence determined by the compositional embodiment of the plan; 2) transformation of ready-made text fragments (their distribution or reduction), inclusion of ready-made blocks in the contextual context relevant to the speaker, use of additional means of interphrase communication, expressive amplifiers that create the effect of the author's "inclusion" in the text; putting into a strong position the statements that determine the dominance of the text explication of the idea "[Gridina 2012]. The distinguished strategies for completing a statement in a given word form reveal both the stereotyped and creative character of text generation.

7.2. We give examples of three exponential texts illustrating both the stereotyped and creative vectors of the deployment of the propositional semantics of grammatical forms of the stimulus word *winter*

Text 1. *Winter is a snowy season. Winter has a wayward character: it is either soft and fluffy, then severe and prickly. It's good in the winter at the cottage when you have a cold outside, and you are sitting with a book and a mug of hot tea by the warm fireplace. Nearby, curled up in a ball, a cat sleeps. They say it's for the cold winter. When winter takes its rights, covering everything with sparkling snow, it becomes surprisingly joyful and bright, and you live with a "presentiment of the Christmas tree," New Year, gifts. I love winter for skating, skiing, roller coaster. Many in winter miss summer, and I miss winter in summer.*

Text 2. *Russian Winter. Cold and long, not like a short, hot summer. But Winter has no choice what to be her, she is named so as to cause "cold associations". And when someone flees from Winter (for example, to the Emirates*

or to a warm stove), she protests with blizzards and snowstorms, rewarding the apostates with Inactivity, Overweight, Heavy Clothing, Frost. In the harsh Russian winter, when nature and people "hibernate" from the cold, it is customary to frighten foreigners. But treating Winter as something "frozen and unhealthy" can only be done by someone who hasn't seen Winter with his own eyes. Did not see how the patterned branches of the trees, dropping the foliage, dressed in elegant white clothes in the winter. Did not see how the first snow sparkles in the sun, how both adults and children rejoice at it. Winter has a lot of surprises and fun. Russian Winter "sets the heat" to its rivals - Spring, Autumn!

Text 3. *Winter can be treated differently. Paraphrasing the classic a little, I'll say: "I am sick in winter!" In the literal and figurative sense. When winter comes, everything changes dramatically in nature: dazzling, but such a cold sun, trees in snow-white fur coats, turbulent rivers turning into an indestructible ice monolith. In winter, you constantly experience a state of mild colds, no matter what mountains of clothing you put on. And when the piercing north wind knocks down, when the daylight ends, barely having time to begin, you begin to hate this winter (despite all its beauties). One thought in my head: "How to survive until the summer." But here is the paradox! In the summer, wandering through the hot city corners in search of a piece of shade, we yearn for the winter ...*

The identified text generation strategies can become the basis for creating *digital versions of programming utterances* on a given topic, both for the purpose of teaching the Russian language (including foreign), as well as for the diagnosis of stereotyping or originality of textual activity in various discursive practices of modern society.

REFERENCES

[1] Belyanin, V.P. (1997), Psiholingvistika [Psycholinguistics], Flinta, Moscow, 232 p.

[2] Gridina, T. A. (2015), "The associative potential of words as the basis of linguistic and creative activity: experimental data", Questions of psycholinguistics [Associativnyj potencial slova kak osnova lingvisticheskoj kreativnosti: eksperimental'nye dannye, Voprosy psiholingvistiki], No 3(25), pp. 148-157.

[3] Gridina, T. A. (2012), "The method of completing statements : strategies of text generation is emphasized", Psycholinguistic aspects of speech activity ["Metodika zaversheniya vyskazyvaniya: strategii tekstoporozhdeniya", Psikholingvisticheskie aspekty izucheniya rechevoi deyatel'nosti], Ekaterinburg, Vol.10, pp.18-35.

[4] Karaulov, Yu. N. (2003), Russian language and language personality [Russkij yazyk i yazykovaya lichnost'], Editorial URSS, Moscow, 261 p.

[5] Konovalova, N. I. (2018), "From formal logic to living grammar: ideas of F. I. Bushlaev in modern theory and practice of teaching the Russian language", Philological class ["Ot formal'noi logiki k "zhivoi" grammatike: idei F. I. Buslaeva v sovremennoi teorii i praktike obucheniya russkomu yazyku", Filologicheskii klass], No 2, pp. 59-63.

[6] Leont'ev, A.N. (1975), Activity. Consciousness. Personality [Deyatel'nost'. Soznanie. Lichnost], Politizdat, Moscow, 304 p.

[7] Norman, B.Yu. (2011), Fundamentals of Psycholinguistics: a course of lectures [Osnovy psiholingvistiki: kurs lekcij], BSU, Minsk, 131 p.

[8] Saharnyj, L.V. (2004), "Man and text: two grammars of text", General Psycholinguistics ["CHelovek i tekst: dve grammatiki teksta", Obshchaya psiholingvistika], Labirint, Moscow, pp. 284-306.

[9] Smogorzewska, J. (2014), "Developing children's language creativity through telling stories – An experimental study", Thinking Skills and Creativity, Vol. 13, pp. 20–31, DOI: https://doi.org/10.1016/j.tsc.2014.02.005

[10] Tin, T. B. (2011), "Language creativity and co-emergence of form and meaning in creative writing tasks", Applied Linguistics, Vol. 32, Issue 2, pp. 215–235, DOI: https://doi.org/10.1093/applin/amq050

[11] Cekaite, A. (2018), "Microgenesis of language creativity: Innovation, conformity and incongruence in children's language play", Language Sciences, Vol. 65, pp. 26–36, DOI: https://doi.org/10.1016/j.langsci.2017.01.007