Client-Service Communication: Speech Patterns and Scenarios (based on the Materials of the "One Day of Speech" Corpus)

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Abstract—**The article delves into communication between service sector professionals and their customers, utilizing transcripts of authentic conversations sourced from the Russian "One Day of Speech" sound corpus. Its primary aim is to unearth recurring speech patterns that typify customer-service interactions. To achieve this, the conversation transcripts are segmented into individual speech acts. Each segment is then labeled, highlighting the speaker's role and the specific type and subtype of the speech act. By scrutinizing these subtypes, the study juxtaposes the discourse styles of both clients and service representatives, thereby discerning patterns influenced by the domain of communication. The findings from the study are beneficial for scientific research in speech communication as well as for optimizing automatic answering systems or chatbots.**

I. INTRODUCTION

Customer service plays an important role in people's lives, as going shopping or calling a taxi is an everyday necessity for person. Understanding how human speech interaction occurs in the service industry is essential to improving customer service, as service evaluation often correlates with the personal characteristics of personnel displayed during the conversation [1]. Therefore, the study of people's speech interaction in this sphere seems to be actual and practically significant. Especially considering the development of modern technology [2].

One of the most common applications of speech technology in business is the creation of chatbots, both spoken and written [3]. Chatbots help people navigate a shop's website, register at a health centre and place online orders. This is not only convenient for users, but also profitable for business owners, as a decently made computer programme can replace full-time employees [4].

Companies involved in implementing voice and text assistants into systems and services that interact with customers are focused on continuous improvement of their products. The naturalness of the bot is often an important parameter. To improve this factor, it is necessary to understand what exactly seems "natural" in human communication. Corpus data provides information about real patterns found in dialogues. Based on the frequency, variability of certain speech elements, it is possible to identify characteristic features inherent to this type of communication.

The study of customer communication is necessary both for academic purposes: to describe speech scripts and speech patterns, as well as to help create humanlike chatbots. The main advantage of this paper is that the research material consists of transcribed recordings of people's everyday conversations.

The overall aim of the paper is to identify the main communication patterns and scenarios between service representatives and customers. For this purpose, data from selected transcripts from the One Day of Speech (ORD) [5] sound corpus will be studied.

II. RESEARCH MATERIALS AND METHODS

This paper uses materials from One Speech Day (ORD), one of the largest sound corpuses of contemporary spontaneous Russian speech [6]. It was created in order to "address live speech in its natural performance, not restricted either by laboratory recording conditions or by specific speech tasks for informants" [7]. Volunteers who took part in the corpus creation continuously recorded their speech using a voice recorder for one day. The resulting audio files were split into fragments and subsequently manually transcribed. To each episode of the corpus, the key information about the type of communication (domestic conversation, client-service, teaching), the role of the informant in the dialogue (client, daughter, student, doctor), and the place of action (at home, on the street, in an educational institution) was added.

Speech transcription, as well as further annotation, was performed manually as part of an interdisciplinary project aimed at creating a chatbot based on the ORD corpus. For the tasks of the project, speech acts [8] are used as transcription units. In the present study, "a speech act is considered as a purposeful speech action considered in the context of a pragmatic situation and possessing a certain illocutionary force" [9].

Consequently, all utterances are presented in the form of one or more speech acts so that each speech fragment conveys its own illocution. Speech acts are provided with information about the speaker (identification code and the role of "CL" - client or "SS" - service employee, salesperson).

Pragmatic markup includes annotation of speech act types and subtypes. In linguistics "there is still no convention of constructing a linguistic typology of speech acts" [10]. Each of the possible classification systems has its own advantages and

disadvantages. For the purposes of this paper, the main categories are highlighted in accordance with the classification of speech acts developed by I. Borisova [11] and extended by the authors of the ORD corpus [12].

This kind of markup preserves information that cannot always be extracted directly from the words, so that it is possible to get a more complete understanding of a person's speech and the intentions hidden in it. Fig. 1 shows the main types of speech acts used in work. Speech act types are detailed into more than 200 subtypes that encapsulate a particular illocution. For example, question, answer, comment, explicative are subtypes of representatives (INF).

representatives	INF	necessary for the exchange of information (include e.g., question, answer, description, explanation, reminder, clarification, comment)
directives	DIR	induce a physical or mental action (request, advice, permission, persuasion)
commissives	COM	express the speaker's willingness to make certain commitments (promise, declaration of intent, agreement to comply with a request)
expressives emotives	EMO	used to represent feelings and emotions (expression of positive/negative emotions, surprise, joy, interest)
etiquette expressives	ETI	standard constructions used in etiquette and ritualized situations (greeting, farewell, words of gratitude, apology, congratulations, wishes)
valuatives	VAL	express an evaluative opinion (objection, judgement, rebuttal, evaluation, doubt)
suppositives	SUP	are used to express the speaker's opinion
discourse regulatory acts	REG	SA related to the organisation of communication (speech support, abandonment or change of topic, indicator of readiness for communication)

Fig. 1. Speech act types

In order to study the speech interaction between customers and service employees, from the ORD corpus were selected recordings, where one of the dialogue participants is a representative of the service sphere, the second one is a visitor. A research sample consisting of 175 episodes with a total volume of more than 109600 tokens, 22140 speech acts, which almost completely covers the topic of service communication in the ORD corpus.

The topics, or domains, represented in the sub-corpus are mainly related to shopping, communication with staff in health care facilities, communication in eating places, dialogues at the reception desk or with staff in various offices (see Table I).

TABLE I. SAMPLE COMMUNICATION DOMAINS

Domain	Episodes	Speech acts	Tokens
Healthcare	24	4952	26542
Shopping	59	4897	25268
Repair Service	17	3883	16552
Office Supplies	24	2645	13675
Reception Area	13	1387	7284
Beauty Centre	9	1167	6508
Social Assistance	3	1312	4909
Pharmacy	4	776	4162
Catering	12	525	2092
Technical Support	3	152	1157
Photo Centre	3	174	565
Checkpoints	6	167	496
Post Office	2	85	302
Transport	2	26	91

Speech volume, i.e. the total number of speech acts, depends on the place and purpose of communication. For example, the number of medical episodes is twice as low as in the shopping domain, while the number of speech acts is higher. The pragmatic side of the particular dialogues or whole domains can be seen due to the labelling of speech acts by types and subtypes.

III. PRAGMATIC CHARACTERISTICS OF CUSTOMER-SERVICE COMMUNICATION

A. Distribution of speech act types

Among the eight types of speech acts under consideration, the most frequent are representatives (56% of the total number), discourse regulatory acts (18%), directives and valuatives (7% each). This is followed by etiquette expressives, suppositives, commissives and expressive-emotives (5%, 3%, 2% and 1% respectively). The distribution of speech acts demonstrates that more than half of all speech acts are aimed at reporting and communicating information (INF). The second significant part of speech acts is necessary for the organisation of speech flow (REG). A similar situation is reflected in the data obtained for the core part of the ORD corpus [12].

For the status-orientated type of discourse, to which client-service communication belongs, the roles of speakers are important, so they should be taken into account in a more detailed description. The speech of customers includes 10670 speech acts, and the speech of service employees includes 11478 speech acts. Fig. 2 shows the distribution of speech volume by role in the main highlighted domains.
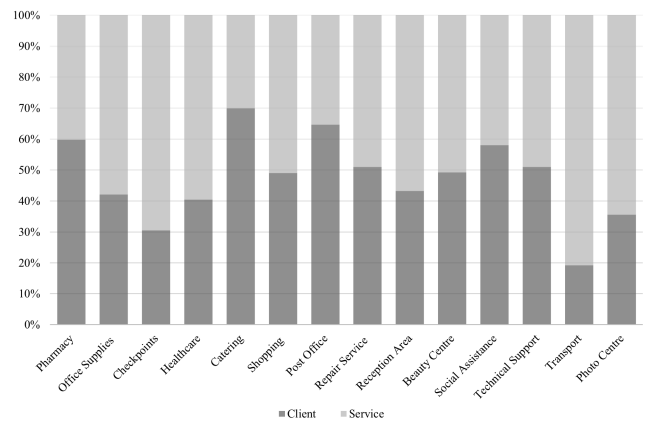

Fig. 2. Distribution of roles by domain

According to this distribution, domains can be divided into three groups:

1) customer speech predominates (catering venues, post office, pharmacy, personal care);

2) speech of service employees prevails (document handling, checkpoints, communicating with a doctor, at the reception, in transport or in a photo centre);

3) distribution of speech acts by roles is approximately the same (repair centre, shopping, beauty centre).

Fig. 3 shows the ratio of the main types of speech acts to roles, the numerical values reflect the total number of tokens.
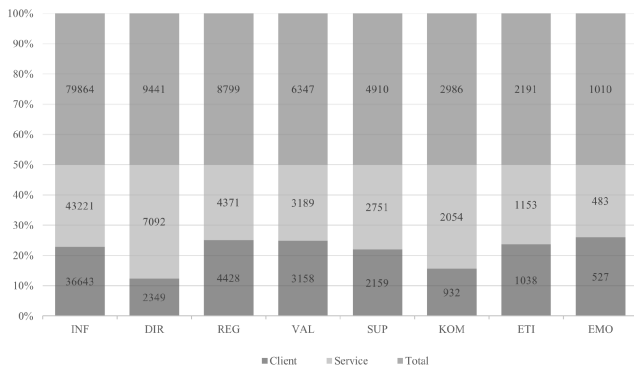
Fig. 3. Distribution of speech act types by role

In general, noticeable differences in the number of speech acts are characteristic of directives and commissives, which are more numerous in the speech of service representatives. For example, the total number of words for directives is 9441, 7092 of which refer to the service role.

Differences in the distribution of speech act types indicate the special nature of communication. Thus, for successful interaction for people, in the position of a service employee, in addition to the transfer of information, an important role is played by verbal expression of their intentions. This function is represented by directives and commissives.

B. Distribution of speech act subtypes

The analysis of particular subtypes of speech acts allows to get a comprehensive idea of people's speech behaviour. In total, more than 200 different detailed types of speech acts are distinguished, and 181 subtypes are presented in this paper.

The first results of the analysis of speech act subtypes were obtained during the study of communication between buyers and sellers in the domain "shopping" [13]. The distribution of RA subtypes between roles, just as in the case of the main types of speech acts, reflects the influence of the function performed at the moment of dialogue on speech.

For salespeople, the primary goal is to fulfil the customer's *request*. Among speech acts of employees, the subtypes *answer*, *explicative* and *fact* exceed the number of the same categories in the speech of customers.

For buyers, on the contrary, the leading subtype is *question* followed by *answer*. Next come discourse regulatory acts (*speech support*), which are necessary for maintaining the integrity of the conversation. It is worth noting separately the appearance of etiquette expressives (ETI) – *gratitude* among the first subtypes of speech acts in clients' speech.

Table II shows the 35 most frequent subtypes of speech acts, accounting for 89% of all speech acts in the customer-service communication sample. The most common types, as with the individual domain, are question and answer. Of the 35 subtypes, 19 are equally characteristic of both the client and staff roles. Among them are mainly discourse regulatory acts necessary for organising speech, e.g. *interrogation*, *repetition*. About 5% of all speech acts of clients and service staff is occupied by speech support. These are such phrases as 'aha',

'uh-huh', 'yes', 'I see'. Also common are subtypes communicating information, for instance *message*, *complement*, *description*. In addition, dialogue participants equally greet each other (type ETI), express their opinion (type SUP) or *agreement* (VAL).

In order to assess the significance of differences between speech act subtypes, the χ2 statistical test was performed. Table II shows the p-values for the main subtypes; if this value is less than 0.05, it can be stated with a probability of 95% that the shares of the corresponding speech act in the speech of clients and service employees are significantly different (in the table these values are marked in bold).

TABLE II. DISTRIBUTION OF THE SUB-TYPES OF THE SAMPLE BY ROLE

Subtype	CL %	SS %	p-value	Total	Subtype	CL %	SS %	p-value	Total
Question	49	51	**0.045**	3196	Greeting	51	49	0.357	289
Answer	49	51	0.214	2236	Proposal	24	76	**0**	251
Explanation	35	65	**0**	1376	Description	58	42	**0.001**	249
REG	47	53	0.381	1279	REG	45	55	0.361	243
Message	54	46	**0.0001**	1171	Instruction	11	89	**0**	243
Complement	48	52	0.871	1014	REG	43	57	0.106	233
Fact	43	57	**0.001**	1014	Farewell	38	62	**0.002**	223
REG	53	47	**0.003**	1001	Clarifying answer	44	56	0.206	199
Agreement	53	47	**0.005**	713	REG	34	66	**0.0001**	192
Narration	71	29	**0**	645	Attention	45	55	0.381	191
Commentary	40	60	**0.0001**	598	Opinion	47	53	0.722	154
Interrogation	49	51	0.665	437	Request	91	9	**0**	137
Repetition	45	55	0.255	352	Conclusion	30	70	**0.00002**	135
Intention	31	69	**0**	331	Confession	51	49	0.493	135
Favour	40	60	**0.002**	330	Citation	63	37	**0.0007**	134
Gratitude	78	22	**0**	305	Readiness	29	71	**0.00007**	112
Suggestion	52	48	0.201	305	Thank you reply	18	82	**0**	106
Notification	15	85	**0**	292					

(CL – client, SS – service, REG – discourse regulatory act)

12 out of 35 subtypes are more common in the speech of service employees, for example, *explicatives*. There are also more directives such as *favour*, *suggestion*, *instruction* and etiquette formulas (*farewell*) among their speech acts. An example of an instruction given by a service employee to a customer:

i esli ona gorit postoyanno / znachit / vsyo normal'no s vhodnym napryazheniem / esli ona morgaet / znachit / libo fazy net odnoj / libo perekos bol'shoj fazy / imenno s vhodnym napryazheniem //

[and if it lights up constantly / it means / everything is normal with the input voltage / if it blinks / it means /

either one phase is missing / or a large phase is skewed / exactly with the input voltage //]

(Domain: Repair Service)

Request, *narration*, expression of *gratitude* and *citation* are used more by clients.

In general, the diversity of speech act subtypes among roles is comparable: in the speech of customers there are 134 used types; in the speech of service employees - 133. At the same time, the differences in types and subtypes of speech acts used show the influence of a person's role on his/her speech behaviour. Thus, the client's role is rather passive, does not imply special actions, functions affecting communication, so their speech has fewer subtypes of speech acts different from the most common ones. Service employees, on the contrary, have their own labour duties that need to be fulfilled, which is reflected in the number of specific speech acts.

IV.   CUSTOMER-SERVICE COMMUNICATION STRATEGIES

Speech analysis via speech act markup is useful for modelling human-bot communication. In order to make the bot's speech sound natural, developers try to use patterns of communicative behaviour familiar to people. There are different variants of speech scripts created on the basis of works of linguists, psychologists, sociologists and other scientists who study communication [14]. When developing a dialogue system, it is necessary to plan all actions of the bot, starting from the type of interaction with a human and ending with specific speech acts [15].

A. Bigram analysis

Subtypes of speech acts following each other can be represented as bigrams, for example, *question-answer*, *answer-explanation*. By analysing the distribution of speech act subtypes in terms of the communication strategies used in the creation of chatbots, it is possible to verify how the described strategies are realised in live communication.

The first case is a way for the client to clarify information. In bot-to-human communication, it is a confirmation of intent, meaning a correct understanding of the user's request.

In order to avoid serious errors, developers often sacrifice the naturalness of the system's responses, for example, repeating verbatim the previous user's line. In some systems, explicit confirmation of the user's intentions is completely abandoned. This approach involves risks for business, as a chatbot error can lead to loss of both customers and finances. Nowadays, there are machine learning methods, such as reinforcement learning, that allow analysing communication and choosing a strategy of direct/indirect/no confirmation depending on the situation [16].

The chatbot answers themselves are generally presented in the form of a list of ranked options, from which the most frequent one is selected. Such a list can be created manually, based on the life experience of developers, scriptwriters. Using corpora for this purpose can improve the naturalness of the bot, as real-life data will be used [17].

In order to see how this situation is reflected in oral speech, it is necessary to analyse such subtypes of speech acts as *clarifying question* and *interrogation*. About 1% of all speech acts subtypes, both in clients and in service employees, is taken up by the *interrogation*. It usually occurs after an *answer*, *question*, or *explanation*. *Interrogation* appears in those cases when the communicator did not hear the whole or part of the interlocutor's speech. In a situation when a person has not understood the whole phrase, speech acts more often consist of one word or interjection: 'ah?', 'mm?', 'what?'. When the interlocutor wants to clarify a specific detail, he/she tries to include it in the speech act. The same pattern is typical for clarifying questions:

a s obivochkoj kakoj?	*and what kind of upholstery?*
*vot s **takoj** zhe //*	*like **this one** //*
*vot s **etoj** / da?*	***this one**?*
*tol'ko **kapustnye** //*	*only **cabbages** //*
***kapustnye**?*	***cabbages**?*
*a / **kapustnye** //*	*a / **cabbages** //*
*a den'gi prishli vse / ili net? **po grantu** //*	*did the money come through or not? On **the grant**.*
*vy imeete v vidu **po grantu**?*	*you mean **the grant**?*

Clarification presented in the form of a question occurs in different episodes, in any domains. Therefore, we can say that the repetition of information in successive replicas is used in everyday oral speech.

Bigram analysis is also suitable for identifying adjacency pairs — pairs of utterances where the second one is a reaction to the first one. The response in adjacency pairs can be of any kind, including several variants of the second element of the pair. This depends on how the interlocutor interprets the initiation. So, for example, silence is also considered a reaction to initiation. In human-bot communication, a pause in the bot's response can be perceived by the user as a failure in communication: the system either did not understand the human response or is unable to generate a answer [18].

Adjacency pairs can be represented as bigrams-subtypes of speech acts (with the role of the speaker). The most frequent bigrams are different combinations of *questions* and *answers*, including question-to-question answers.

The other subtypes of speech acts are often supplements to the question or answer, such as *explanation* and *clarification*. Discourse regulatory acts (*speech support* such as 'yeah', 'I see') that follow the *answer* or *explicative* are also frequent.

Among other bigrams there is *gratitude* which is followed by a response from the communicator ('thank you' – 'you're welcome/please'). The *response to the farewell* itself is a reciprocal *goodbye*. A *greeting* is followed by a return *greeting* or a *question*.

Telephone conversations are characterised by speech act sequences such as the communication preparedness indicator *readiness-greeting*.

Thus, the frequency bigrams occurring in client-service communication correspond to the main adjacency pairs (question-answer, greeting-answer, farewell-farewell). The *readiness*-*greeting* pair, characteristic of telephone conversations in Russian, is also highlighted.

B. Speech patterns of customer-service communication

Although there are general tendencies in real communication, it is difficult to unify them, since the dialogue depends on the interlocutors. Nevertheless, there are certain speech acts, the realisations of which are limited. These include the most formalised types and subtypes of speech acts related to the rules of etiquette, typical situations. For example, speech acts expressing greeting, farewell, gratitude and response to it.

In order to identify individual speech patterns characteristic of speech acts, the list of speech acts corresponding to the selected subtype was lemmatised. Next, the number of identical elements among all speech acts of this subtype was counted. The results are summarised in Table III.

For the subtype of *greeting* in client-service communication three basic speech formulas are identified ('hello/hi' – 'zdravstvujte/privet', 'good morning/afternoon/evening' – 'dobroe utro/den'/vecher'), to which can be added a proper name or a name of the organisation:

Elena, dobryj den'!	Elena, good afternoon!
Salon krasoty, zdravstvujte!	It's a beauty salon, hello!

The *farewell* subtype replicas are also characterised by basic and variant parts. In addition, farewell is marked by the presence of particles framing the pattern itself and indicating the end of communication ('that's all' – 'vsyo', 'okay' – 'ladno'). At the same time, unlike the *greeting*, the formal and informal registers of farewell are distinctly different. Thus, variants with the lemma 'to give' – 'davat'' are used only before 'bye' – 'poka', which usually marks a closer degree of familiarity of the interlocutors:

Nu ladno, davaj, poka!	Okay, let's go, bye!

For the subtype *gratitude*, as a rule, is used the lexeme 'thank you' – 'spasibo'. In about 20% of cases, 'spasibo' is followed by the adjective 'great' – 'bol'shoe' and less often, 'huge' – 'ogromnoe'.

There are relatively fewer *responses to gratitude* than speech acts with subtype of *gratitude*. This is largely because *gratitude* is often followed by *farewell*. The most common form of response is the lexeme 'please' – 'pozhalujsta'. This is followed by 'you're welcome' – 'не за что' and various reciprocal wishes:

Vsekh blag vam!	All the best to you!
Daj bog vam zdorov'ya!	God bless you!

TABLE III. SPEECH PATTERNS OF SOME SUBTYPES OF ETIQUETTE EXPRESSIVES

Core part	Variable part	Relative value
Greeting, number of occurrences in the sample — 280		
Hello (formal) 'zdravstvujte'	name organisation appeal (girls/guys)	76%
Good morning/day/afternoon 'dobroe/dobryj utro/den'/vecher'		17%
Hi 'privet'		4%
Other		3%
Farewell, number of occurrences in the sample — 201		
Goodbye 'do svidaniya'		65%
All the best Vsego dobrogo/horoshego'		12%
Stay happy 'schastlivo'		7%
look forward to seeing each other	See you/ see you tomorrow 'do vstrechi/svyazi vechera/zavtra'	6%
Bye 'poka'		4%
give 'davat' (davaj)'		4%
Gratitude, number of occurrences in the sample — 282		
Thank you 'spasibo'		72%
	big 'bol'shoe/ogromnoe'	22%
	you 'vam/tebe'	4%
	for … 'za …'	3%
Response to thank you, number of occurrences in the sample — 106		
Please 'pozhalujsta'		80%
expressions characteristic for catering	bon appetit 'na zdorov'e priyatnogo appetita'	7%
you're welcome 'ne za chto'		6%
blessings/good wishes 'vsekh/vsego blag/dobrogo'		4%
Good luck 'udachi'		2%

In addition to the accepted communication etiquette formulas, there are identified important subtypes of speech acts for customer-service communication, such as *request* or *statement of intent*.

The *request* can be expressed in different ways, but even among them there are separate groups in which certain words and expressions are repeated. They are shown in Table IV.

The first most common way to ask for something to be done is to verbalise your desire (name the object or action) without using any additional constructions other than the word 'please' – 'pozhalujsta'. Requests are often expressed using the word-forms 'can' and 'need', as well as individual verbs ('want', 'can') with the pronouns in the first person ('we need', 'I want', 'can/may I').

As for the subtype *statement of intent*, the common feature of all variants is the use of the verb in the form of future tense ('I will look' – 'posmotryu', 'I will go' – 'poedu', 'we will write' – 'napishem', 'we will call back' – 'perezvonim'). Of

the 284 occurrences analysed, 40% of them contain the adverb 'now' – 'sejchas', which can also be considered a characteristic pattern:

Davajte ya **sejchas** posmotryu	Let me look **now**
My **sejchas** smesitel' postavim	We will put the mixer on **now**
Ya **sejchas** zajdu na sajt	I will go to the site **now**

TABLE IV. SPEECH PATTERNS OF THE REQUEST SUBTYPE

Core part	Variable part	Relative value
Request, number of occurrences in the sample — 104		
Name subject	please 'pozhalujsta'	31%
Need	'nado/nuzhno'	19%
Specific verbs	want 'hotet'	12%
	can 'moch'	9%
	tell 'skazat'	6%
Imperative	give 'davat'	12%
Question		8%
Please! 'bud'te dobry'		4%

V. CONCLUSION

The paper analyses transcripts of people's everyday speech in conditions of providing or receiving various kinds of services.

The main findings show that a significant influence on people's communicative behaviour is exerted by the dialogue roles that occupy interlocutors. For successful interactions, it is important for those in the position of service employee to seek to fulfil their job duties in addition to providing information. As a rule, they consist in explaining instructions, informing about goods and services, in the endeavour to keep the client, which is expressed by the prevalence of such subtypes in their speech as, for example, *explicative*, *statement of intent*.

For the role of the customer it is more difficult to identify characteristic communicative strategies, as the client takes a less active position in the dialogue. The main function of the client in this type of communication is to formulate his/her request (*request* and *narrative* subtypes).

In addition, the communicative domain, on which speech scripts and patterns depend, is important. In some situations, the customer expects more involvement of service representatives in the dialogue for example, consulting a doctor. In contrast, during the shopping visitors need less help from employees.

Features of speech behaviour are reflected in types and subtypes of speech acts, in their distribution. The more frequent types are associated with the main actions of dialogue actors. The number of these or those subtypes indicates the role functions. For example, the use of different directives is characteristic for representatives of the service sector, while *gratitude* is more common in the speech of clients.

Through the analysis of the distribution of speech act subtypes in terms of communication strategies used in the creation of chatbots, it was possible to verify how the described strategies are executed in face-to-face communication. For instance, the ways in which one of the dialogue actors can confirm the correctness of the lines he or she has understood. It was noted that in real communication this is often expressed by means of clarifying questions. In this case, the question itself or part of it may repeat the prior utterance in full verbatim.

The representation of speech act subtypes in the form of bigrams made it possible to identify adjacency pairs in client-service communication. In addition to the traditionally distinguished pairs of question-answer, gratitude-response gratitude, a pair characteristic of telephone conversations was singled out: the indicator of *readiness for communication-greeting*.

In order to identify specific speech scenarios of service communication, it is necessary to limit the domain and purposes of communication, as people's speech behaviour in general cannot be unified. At the same time, individual patterns found among speech act subtypes can be used to create lists of intents or prepared schemes of typical speech situations (greeting, farewell).

Understanding how everyday speech is organised in service communication is necessary both for scientific purposes and for the improvement of modern speech technologies. For example, a database of possible variants of questions, answers, requests and other speech acts can be useful for the development of chatbots. In addition to the possible communication patterns themselves, this data can be used to train language models. In this case, the bot will better understand the dialogue context, distinguish human intentions, and generate more realistic replicas.

Besides the pragmatic analysis of customer-service communication, this paper provides an example of the application of speech act analysis to the study of speech. Splitting speech into speech acts and analysing their subtypes allows finding and highlighting patterns in the natural communication of people. Based on the obtained conclusions it is possible to create speech scenarios for dialogue systems. Lists of expressions obtained as a result of classifying speech acts into subtypes can be used as examples of intents that can be used to train a chatbot to recognise or generate replicas.

REFERENCES

[1] N. Sharma, P. G. Patterson, "The impact of communication effectiveness and service quality on relationship commitment in consumer, professional services", Journal of Services Marketing, vol. 2(13), 1999, pp. 151–170.

[2] M. Chui, "McKinsey Global Institute. The state of AI in 2022—and a half decade in review", 2022.

[3] T. Sherstinova, I. Petrova, O. Mineeva, and M. Fedosova, 'Empirical Studies of Everyday Professional, Domestic and Client-Service Communication for the Development of Voice Assistants in Russian', in Proc. Conf. of Open Innovations Association (FRUCT), IEEE, 2022, pp. 262–269.

[4] M. Heo, K. J. Lee, "Chatbot as a new business communication tool: The case of naver talktalk", Business Communication Research and Practice, vol.1, 2018, pp. 41–45.

[5] One Day of Speech corpus Web: https://ord.spbu.ru.

[6] A. Asinovsky, N. Bogdanova, M. Rusakova, A. Ryko, S. Stepanova, T. Sherstinova, "The ORD Speech Corpus of Russian Everyday Communication «One Speaker's Day»: Creation Principles and Annotation", LNAI, Springer, Berlin-Heidelberg, vol.5729, 2009, pp. 250–257.

[7] N. Bogdanova, A. Asinovskiy, E. Markasova, S. Stepanova, A. Suprunova, T. Sherstinova, "Sound corpus of the Russian language "One speech day": ways of replenishment and the first results of the study" [Zvukovoj korpus russkogo yazyka «Odin rechevoj den'»: puti popolneniya i pervye rezul'taty issledovaniya], Computer Linguistics and Intellectual Technologies: in Proc. International Conference Dialogue-2010, 2010, pp. 16.

[8] J. L. Austin, "How to do things with words", Oxford university press, 1975.

[9] T. Sherstinova, "Pragmatic annotation of communicative units in the ORD corpus: microepisodes and speech acts" [Pragmaticheskoe annotirovanie kommunikativnyh edinic v korpuse ORD: mikroepizody i rechevye akty], in Proc. International Conference "CORPUS LINGUISTICS - 2015", SPb.: SPbSU, 2015, pp. 436-445.

[10] E. Rakhilina, "Speech acts as a linguistic category: discursive formulas" [Rechevye akty kak lingvisticheskaya kategoriya: diskursivnye formuly], Voprosy linguoznaniya, 2021, pp. 7-27.

[11] I. Borisova, "Russian spoken dialogue: structure and dynamics" [Russkij razgovornyj dialog: struktura i dinamika], Moscow: URSS, 2009.

[12] T. Sherstinova, "The structure of everyday dialogue as a sequence of speech acts" [Struktura povsednevnogo dialoga kak posledovatel'nost' rechevyh aktov], Computer Linguistics and Intellectual Technologies: in Proc. International Conference Dialogue-2018", Moscow: RSUHU, 2018, pp. 637-651.

[13] I. Petrova "Scenarios of communicative behaviour of sellers and buyers when shopping in everyday life" [Scenarii kommunikativnogo povedeniya prodavcov i pokupatelej pri osushchestvlenii pokupok v povsednevnoj zhizni], SPb.: HSE, 2022.

[14] J. Cahn, "CHATBOT: Architecture, design, & development", University of Pennsylvania School of Engineering and Applied Science Department of Computer and Information Science, 2017.

[15] E. Adamopoulou, L. Moussiades, "Chatbots: History, technology, and applications", Machine Learning with Applications, vol.2, 2020.

[16] M. McTear, Z. Callejas, D. Griol, "The Conversational Interface: Talking to Smart Devices", Switzerland: Springer Cham, 2016.

[17] B. A. Shawar, E. Atwell, "Using dialogue corpora to train a chatbot Citeseer", 2003, pp. 681–690.

[18] E. A. Schegloff, "Sequencing in conversational openings", American anthropologist, vol.6(70), 1968, pp. 1075–1095.