How “category width” cognitive style affects language processing

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Abstract

We focus on language processing and language modelling in the mother tongue and its dependence on “category width” cognitive style, and on social distance without social power. For this purpose, a transaction/sequence model was formulated and the data - requests in a given social situation were collected and applied. The C-W Scale and association rules analysis were used. The research was carried out at the university of Constantine the Philosopher in Nitra. The results indicate that a narrow categoriser uses only one simple expressive factor to manifest politeness at the beginning or in the middle of a request, while a broad categoriser uses more expressive factors and uses them at the beginning, in the middle and at the end of a request.

Keywords: “Category width” cognitive style; language processing; mother tongue; social situations

1. Introduction

The way in which we process linguistic information and form specific communication patterns depends on a variety of variables. Social variables (defining interaction between an individual and its surroundings) and cognitive-personal variables (cognitive style, information production, categorisation, etc.) determine the choice of linguistic and paralinguistic means as well as politeness strategies, depending on individuals and their culture.

The study is focused on previous research in the field of category width, and the factors of politeness in the theory of speech acts in formulations of request in a foreign language (Stranovská et al., 2012; Munková et al., 2013; Stranovská et al., 2013). The study also drew from the current studies (Roche, 2013; Köppel, 2013; Höhle, 2012 and

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other), which focus on examining and defining the modelling of mother tongue language processing. Moreover, the current study drew from the model by Brown & Levinson (1987). The model is the base for current models and definitions of politeness (Scollon & Scollon, 1995; Yabuuchi, 2006 and other). Currently, the researchers examine politeness in the context of cultural relativity (Watts et al., 1992; Blum-Kulka et al., 1989; Miššíková (2012) and others), as also they examine the transfer from the static aspects of politeness to the dynamic. Thereby, the cognitive-personal and social variables are considered as dynamic aspects of politeness. The cognitive-personal variables in language processing (L1) were investigated through the “category width” cognitive style (global vs detail language processing). We investigate the influence of social variables on language processing (models formation) through the dimension of social effect- social proximity and social power. We focus on language processing and language modelling of the mother tongue and its dependence on “category width” cognitive style, and on social distance without social power. For this purpose, a transaction/sequence model was formulated, the data - requests in given social situation - was collected and association rules analysis was applied.

2. Language processing, cognitive style and social situations

Current studies in the field of language processing tend to research interactive as well as autonomous models of language processing (Rapp & Goldrick, 2000; Eysenck & Keane, 2008; Pinker, 2009; Sternberg, 2009; Rickheit et al., 2008; Rickheit et al., 2007; Höhle, 2012; and others). The autonomous model introduced by Levelt (1999, in Rickheit et al., 2007) models micro and macro-planning of meanings – semantic aspects – and considers also various communication situations, speech acts models and discourses. Höhle (2012) identifies Levelt’s autonomous model of language processing with a bottom-up model of language perception – specifically, perception of meaning. She puts the interaction model of language processing by Marslen-Wilson in opposition to the autonomous model. Marslen-Wilson’s model describes speech perception as an interaction between bottom-up and top-down perceptions, especially in the perception of structure, sensory information and on-going processes when uttering individual words (Stemberg, 2009).

Pinker (2009) suggests that the bottom-up process of perception requires massive emotional attention because we hear what we expect to hear, which is directly tied to our perception and tightly connected to our knowledge. Hence, we tend to stay away from objective reality.

Every individual processes language in social situations and in mutual interactions differently. He/she interprets with a specific style of communication intention depending on the motivation of the speaker in the act of speech. The intrapersonal variable “category width” cognitive style investigates the method of cognitive processing and information categorisation, in our case linguistic information.

The dimension ‘category width’ cognitive style relates to individual differences in the categories width, namely narrow and broad categorisers. They are dependent on differences in individual strategies of information processing.

The category “broad categoriser”, models global strategies when processing language information as follows (see Munková et al., 2013):
- Gathering information is a global and holistic speech process, complex comprehension of text for orientation and gist, specifically, organising and combining information,
- Interpretation of text is a comprehension of relationships and specification of the gist, integration of selected parts of speech and following recognition of the gist,
- Evaluating text for the integration of selected parts of speech and the evaluation of speech, comparison of the relationship between the text and broader knowledge or an explanation of selected parts of the text using personal experience and personal attitudes.

The category ‘narrow categorizer’ models strategies of detailed analytical processing of language as follows:
- Gathering information happens as detailed processing of speech, as its analyses, showing punctual comprehension of long complex texts in relation to known everyday knowledge, concentration on less general knowledge,
- Interpretation of text is contemplation about individual parts of speech, about its meanings - it is an explanation of the individual word meanings, its phrases, its mutual comparisons and oppositions, explanation of subtle differences and their meanings,
-Evaluating text is a process of critical evaluation or stating hypothesis, it is drawing direct attention to concepts which are in contradiction with one’s expectations, connecting or comparing, explaining or evaluating of one specific feature of the text (see Koršáková & Tomengová, 2004).

Studies of Pettigrew (1958), Sarmány-Schuller (1992, 1997, 2007 and 2009), Jurčová & Sarmány-Schuller, (1993) showed that narrow categorisers are generally more careful, rigid and have a high degree of certainty in cognitive decision-making (mainly males). In most cases, narrow categorisation reflects intellectual passivity; they are less sensible to social changes occurring in group relationships and have a higher tendency to conform in social situations. Broad categorisers show a higher degree of independence, need for freedom and variety of experiences. Jurčová & Sarmány-Schuller (1993), state that category width is also related to altruism, interpersonal attractiveness, formation and cohesiveness of a group.

Social power and social proximity/distance are interpersonal variables of polite communication, which is determined by the choice of speech act devices (Brown & Levinson, 1987). Interlocutors relate to social levels in modelling language processing. The level is determined by two basic axes (Kerbrat-Orecchioni, 1992): the horizontal axis is determined by the level of social closeness, and the vertical axis is determined by the level of social distance. There are only a few research studies investigating the relationship between the continuum of politeness principle and social distance or the relationship between politeness and social dominance. Barnlund & Araki (1985) analysed relationships between positive politeness and distance in speech acts of compliments, and Boxer (1993) analysed indirect complaints and responses to the complaints. Barnlund & Araki (1985), as well as Boxer (1993) discussed positive correlations between social distance and linguistic politeness. However, there is no study examining request as a basic speech act of politeness within research studies. It is possible to formulate a request in various forms, depending on the relationship between interlocutors (in case of social dominance such request may take the form of a command, etc.).


3. Elements of a request sequence

Díaz-Pérez (2003) defines a request as a having set internal and external elements, whereby the internal and the basic part of a request is at its core, i. e. the minimum unit, which can serve as a particular speech act device. We used the classification of request elements in line with Blum-Kulka et al. (1989), Trosborg (1995) and Diaz-Pérez (2003) and we defined the following 30 factors:

- (F1) Title or social role “Mr., Mrs., Doctor, Professor ...”,
- (F2) Surname or friendly appellation “Mr. Smith, Mate ...”
- (F3) Name “Sarah ...”
- (F4) Attention getter “Excuse me, please, ...”
- (F5) Combination of previous
- (F6) Indirect perspective – allusion
- (F7) Listener’s perspective “Could you ...”
- (F8) Speaker’s perspective “Could I ...”
- (F9) Mixed perspective
- (F10) Negative formulation
- (F11) Present tense continuous
- (F12) Modal verb question
- (F13) Conditional
- (F14) Imperative
(F15) Past tense
(F16) Other tenses or ways
(F17) Combination of previous elements
(F18) Correctness of an utterance, in terms of the grammatical structure
(F19) Appropriateness of an utterance, in terms of culture specifics
(F20) Politeness marker “thank you, please....”
(F21) Pre-sequences/preparators, elements before the core of a request
(F22) Post-sequences/supportive reasons, elements after the expressed request
(F23) Mitigating devices/disarmers, elements expressing an apology for disturbing
(F24) Minimisers, elements minimising the impact of a request
(F25) Consultative mechanism
(F26) Compliments/sweeteners, elements intensifying the likelihood of request fulfilment
(F27) Intensificators “... important... , ... as soon as possible ... , ... quick ... .”
(F28) Promises, reciprocity
(F29) Combination of previous
(F30) Others

The first six represent alerters, the following three represent perspectives (in our study they are social factors), factors F10-F19 represent the internal modifications (syntactic and lexical/phrasal downgraders, in our case - language factors) and the rest are external modifiers (supportive moves or in our case - expressive factors).

This classification helps us in the computational modelling and understanding of the culture-specific elements of politeness in speech acts of requesting in particular languages such as a mother tongue.

4. Method

4.1. Participants

Research was carried out at Constantine the Philosopher University in Nitra (CPU in Nitra) during the following academic years 2011/2012, 2012/2013 and 2013/2014. It was attended by 146 students from different major study programmes (students from the Faculty of Arts, Faculty of Natural Sciences and from the Faculty of Education). The average age of students was 20.5 years.

4.2. Measure and procedure

Estimation Scale C-W (Category Width) – the C-W Scale measures Cognitive Style ‘Category Width’ and the real estimation. The author is F. Pettigrew, Slovak translation by Sarmány-Schuller & Jurčová (1993) who pointed to the origin and development of the methodology for measuring cognitive style category width, to the process of its adaptation in Slovak environment and to the first results obtained from a sample of university students, adults with university education with an emphasis on social situations.

It contains 20 statements that suggest certain statements in the form of an average value; the respondent has to guess which of the four fixed numerical alternatives corresponds with the highest and lowest number of occurrences of a given phenomenon.

The responses were assessed on three scores: C-W1 (in our case a) expresses the average value obtained from the estimates of highest values, C–W2 (in our case b) from the estimates of lowest values and C-W3 is the total questionnaire score (sum of C-W1+C-W2). As follows from the definition of broad categorization, estimates are far away from the average in both high as well as low values. At the same time, C-W1 and C-W2 values should be in all cases very close or identical.

4.3. Analysis and results
The association rule analysis represents a non-sequential approach to the data being analysed. We will not analyse the sequences but rather the transactions, so we will not include the order of factors used into the analysis. In our case, a transaction represents the set of factors observed in the texts of requests in situation S2 (situation of social proximity with social power: You are in your professor’s office and you find out that you need to make a call urgently. You are in a situation when you cannot use any other telephone than that belonging to your professor, so you ask him/her to use his/her telephone). The web graphs (Fig.1, Fig. 2) depict the discovered association rules for the requests, specifically the size of node representing the support of incidence of the factor, the thickness of the line represents the support of the rule – pairs of factors (probability of occurrence in the pair) and the darkness of the line colour presents a lift of the rule – the probability of a pair occurrence in a transaction separately. The lift, which defines how many times the factors of request occur more often together as if they were statistically independent. In cases when the lift is more than 1, selected pairs occur more often jointly than separately in the set of used factors of the request. It is necessary to take into account that in characterising the degree of interestingness – the lift, the orientation of the rule does not matter.

We can see from the graph (Fig. 1) that in the narrow category, the factors of request F19, F8, F18 and F11 (support > 79%) belong to the most frequently used factors; similarly the combination of these factors’ pairs (F8, F19), (F18, F19), (F8, F18) and (F11, F19) (support > 79). The factors F20====>F19, F19====>F13, F18====>F8, F18====>F20 and F19====>F18 occur in sets of factors of request more often together than as separate units (lift>1). In these cases the highest degree of interestingness was achieved.
We found different association rules for factors of requests in a broad category. The web graph (Fig. 2) illustrates the discovered association rules. The most frequently used factors are F8, F13, F11, F22, F18 and F19 (support > 66%) and the following pairs (F8, F13), (F8, F22), (F8, F19), (F8, F11) and (F13, F22) occur more together than a separate factor (support > 63%). The factors F19==>F18, F8==>F29, F8==>F27 and F22==>F13 occur more often together in transactions of used factors than separately (lift>1).

5. Discussion and conclusion

The aim of this study was an examination of processing of mother tongue (L1) politeness devices during students’ request formulation depending on the occurrence of social power, social distance (social variables) and ‘category width’ cognitive style (cognitive-personal variable). We focused on the processing of politeness devices in requests depending on social situations. Namely we focused on three social situations - situation without social power in social proximity, situation with social power in social proximity and situation with social power in social distance.

We found out that social situation (situation with social power in social proximity) has an influence on language processing by narrow and broad categorisers, i.e. the use of politeness devices (we divided them into three categories: social, expressive and language factors) by request formulation depending on categoriser (narrow/broad). Individuals, who are represented by detailed and global processing of language information, formulate a request depending on social influence. According to Diaz-Peréz (2003) a requester, especially in situations of social power and social distance, tries to use common politeness formulas and devices to ensure a ‘normal’ tone of his/her request and not to confuse a requestee with specific elements or not to doubt the requester credibility with unusual formulas and devices. Barnlund & Araki (1985), like Boxer (1993), speak about positive correlations between social distance and language politeness. Social distance is linked to the imagination of closeness which is different in different cultures - this is also depicted in language and utterance.

The results of our research showed that the narrow categoriser, in situation of social proximity and social power when formulating a request, especially manifests him/herself with the appropriateness of a request (in terms of culture specifics), speaker’s perspective (intention for his/her utterance), correctness of a request (in terms of the grammatical structure), using present tense and conditional, politeness markers, attention getter and pre-sequences/preparators (elements before the core of a request). The broad categoriser, when formulating a request manifests him/herself with a speaker’s perspective but also with a listener’s perspective, post-sequences/supportive
reasons (elements after the expressed request), correctness and appropriateness of a request, using conditional and present tense, politeness markers, attention getter, intensificators and questions with modal verbs.

It shows that the broad categoriser expresses him/herself with a higher spontaneity when formulating a request, focusing not only on his/her utterance but also on communication partners in comparison to the narrow categoriser. It was reflected in using politeness elements such as the speaker’s perspective and listener’s perspective, post-sequences/supportive reasons, intensificators and questions with modal verbs by a request formulation (they were only used by a broad categoriser). The narrow categoriser focused more on his/her request (speaker’s perspective) and his/her need to prepare to “manifest” a request (pre-sequences/preparators). We agree with the studies of Pettigrew (1958), Jurčová & Sarmány-Schuller (1993), Sarmány-Schuller (2007) or Stranovská et al. (2012), in which it was shown that a narrow categoriser is characterised by the effort to be conservative, rigid and have a high certainty in cognitive decision-making. The narrow categoriser focuses on the correctness and appropriateness of his/her foreign-language utterance. According to Pettigrew (1958) the narrow categoriser is willing to confront him/herself to social situations and changes his/her attitudes, although his/her initial intentions and motives may have been different. This finding is also supported by our study. In comparison to narrow categoriser, the broad categoriser expresses him/herself independently, with low anxiety and procrastination, risk-taking in social situations, originality, having a high need of freedom and variety of experiences, and by being verbally creative in language processing.

It shows that narrow categorisers, when formulating a request, combine language factors mutually (i.e. correctness and appropriateness of a request, present tense and appropriateness and conditional with appropriateness of a request) and also language factors with social factors where he/she uses the speaker’s perspective (aiming at his/her utterance) and attention getter (i.e. speaker’s perspective and appropriateness of a request, speaker’s perspective and correctness of a request and speaker’s perspective with present tense). Strengthening language indicators (factors) of the narrow categorisers support Jurčová & Sarmány-Schuller’s finding that the narrow categoriser attempts to be accurate and is intolerant toward errors. The narrow categoriser checks language correctness and appropriateness of the output before any production.

Broad categorisers combine social factors with expressive language (i.e. speaker’s perspective and post-sequences/supportive reason, speaker’s perspective with appropriateness of a request or speaker’s perspective with conditional or present tense) and language factors with expressive (i.e. conditional with post-sequences/supportive reason).

In the process of mental representation of a situation of proximity with social power, a broad categoriser uses indicators focussing on the meaning of the request. On the other hand, a narrow categoriser considers mainly the language structure and its influence on the requestee. He/she is concerned with self-control in language grammar (correctness and appropriateness of the utterance). The broad categoriser processes language using the bottom-up model and the narrow categoriser by the top-down model. According to Pinker (2009) perception based on the top-down model requires increased emotional effort as opposed to bottom-up perception.

It is noteworthy that the narrow categoriser, when compared to the broad categoriser, uses only one simple expressive factor to manifest a politeness at the beginning or in the middle of the request (politeness device – please). Broad categorisers use more expressive factors (i.e. intensificators, post-sequences/supportive reasons and politeness marker) and use them at the beginning, in the middle and at the end of a request. They combine expressive factors with language and social factors. They employ social factors to attention getter and firstly they focuses on him/herself and then on the requestee in a request. The narrow categoriser fixes on one social factor – speaker’s perspective – which they shift at the end of the request.

We see the further direction of our research in analysing sequences of individual factors of requests in the situation of social distance and social power, and in the comparison of the modelling of requests in social proximal and social distance situations, with and without social power. We consider the analysis of the factors of request modelling as meaningful, actual and necessary because it gives space for the further discourse of reasons and functions of cultural and individual stereotypes in the process of language processing.
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References


