

ABSTRACTS:

1. Lucie Vorlickova

Persons with lumbar disc herniation and nerve - root syndrome form a considerable part of patients spectrum in the neurologist and physiotherapist clinics. The aim of this research was to evaluate the influence of disc herniation on the values of vibratory sensation and to determine the values of the vibratory sensation differences between a lower extremity with root syndrome and a lower extremity without nerve - root syndrome. Vibrometer type IV was used for measurements. The research group consisted of 15 probands (age 41.53 ± 12.77) with L4/L5 or L5/S1 disc herniation diagnosis. The control group consisted of 15 probands (age $37.33 \pm 14,05$) without any chronic back pain. With the statistical analysis of the values there significantly higher vibratory sensation were found in patients with disc hernia. Similarly, significantly higher vibratory sensations were found in the lower limb with nerve-root syndrome in all of the locations (metatarsophalangeal joint of the thumb, malleolus medialis and tuberositas tibiae), with the exception of the spina iliaca anterior superior. This study indicates the possibility of using vibratory sensation testing as a tool to help improve diagnosis and therefore treatment for patients with disc hernia.

2. Jana Kopecka

Molecular characterization of brewing and wine yeast strains in the Czech Republic

The hybrid origin of lager yeast causes problems in the determination of the technologically diverse species *S. pastorianus* and *S. cerevisiae*. Wine and brewing yeast *S. cerevisiae* could be differentiated at the DNA level. In our study we chose the FLO and HIS4 genes, and the regions ITS, RRL2 and YBR033w and mtDNA as target sequences. A group of 28 brewing, wine and type yeast strains were analyzed using PCR and RFLP techniques. Detection of flocculation genes did not document incidences of species-specific representation in any of the strains under study. Gene LgFLO, considered as typical for lager yeast, was also detected in ale yeast. Other analyses led to an identical species classification only in 7 yeast strains. Using digestion of the ITS region, 26 strains, including all of lager yeast were identified as *S. cerevisiae*; this region is thus unsuitable for identification of industrial yeast strains. Identification of ale and lager yeast should partially reflect the maximum temperature of growth. However, growth at different temperatures did not allow for reliable differentiation. Digestion of mtDNA with 4 different enzymes resulted in 9-12 restriction patterns. Identical pattern have 4 out of 9 ale with lager strain; wine yeast exhibited different restriction pattern from brewing and type strains.

3. Petra Amchova

IMPACT OF PRENATAL EXPOSURE TO MODAFINIL ON BEHAVIOURAL AND IMMUNE FUNCTIONS IN MICE

Modafinil (MDF), a psychostimulant drug, is often abused by the young generation in fertile age and thus there is an increasing importance to assess its potential as regards developmental toxicity. This study investigated influence of chronic prenatal and/or postnatal exposure to MDF on anxiety levels, locomotor activity and immune function in adult male mice. Pregnant female mice were given nine daily doses of MDF (50 mg/kg p.o.) or saline (SAL, 10 ml/kg p.o.). The same dosage regimen was used in their adult male offspring. Thus, there were four experimental groups: MDF- and SAL-treated offspring from MDF- and SAL-treated mothers. Horizontal (distance travelled) and vertical (rearings) locomotor activity were recorded in the open field test as follows: Day 1 – naïve animals, Day 8 – acute dose of MDF or SAL, Day 15 – one week of repeated administration. Anxiety was assessed as percentage of entries to open and closed arms in the elevated plus maze with the same schedule as in the open field. The leukocyte phagocytosis was examined by zymosan induced and luminol-aided chemiluminescence assay from blood samples. The distance travelled and the number of rearings in the offspring of mothers who received MDF were lower than those of the control group. However, postnatal MDF treatment increased these behavioural parameters in both offspring groups. Prenatal treatment with MDF increased % of entries to closed arms compared to SAL prenatal administration. This anxiety-like behaviour was not altered after acute or chronic postnatal MDF administration. The phagocytic activity of leukocytes was inhibited in the offspring of MDF mothers regardless of the

postnatal treatment received. We can conclude, therefore, that the prenatal exposition of mice to modafinil induced both behavioural and immune toxicity.

4. Martina Reslova

Possibilities of using Test of Colour Semantic Differential for research into organizational culture

The aim of this article is to show the possibility of using a combination of The Value Survey Module 1994 (VSM 94) and Test of Colour Semantic Differential (TCSD) for research into organizational culture. The data obtained from TCSD shows, how employees consciously **rated** and unconsciously perceived expressions related to Hofstede's cultural dimensions (Power distance, Individualism versus collectivism, Masculinity versus femininity, Uncertainty avoidance and Long-term orientation), or more precisely how they identify themselves with the researched values. The results of the VSM 94 enabled the researchers to determine which poles of the cultural dimensions a particular working group is getting closer to. The conclusion of this article focuses on advantages and disadvantages of TCSD as well as the possibilities of its more focused use for research into organizational culture. TCSD is not currently used widely for research into organizational culture although it has many practical uses thanks to the ability to work with respondent's unconsciousness in connection with a culture and traditions.

5. Yen-Hsuan Huang

Control the Literature: An Analysis of Judges' Social Network

The mechanism of Taiwan's literary awards is an important issue both in cultural sociology and Taiwanese literature. Since 1976, literary awards have taken literary clubs and magazines' places to define the frontier of fine literature. At that time, it also meant that the government presented a model of politically correct literary works in a more gentle way. Nowadays, the form of literary awards still exists and plays an important role in selecting fine literature writers.

Existing research uses text analysis to show that the texts which are written by the recipients and those produced by judges are very similar. Existing research also points out how the judges reproduce themselves by choosing similar works. However, there is little research which shows that literary awards are controlled by judges. Moreover, judges are quite similar to each other.

Hence, we predict these two hypotheses can be confirmed by the data from "The Almanac of Taiwan Literature". We analyze the name lists of literary awards which were held in 2010 to show that judges repeat in different patterns by religion and by category. We also analyze the traits of the judges to show that they are nearly identical. Therefore, this research shows that a "judges' clique" exists. The consequence of this research help refine the research on the mechanism of literary awards in Taiwan. The history of literary awards and recent attempts to eliminate this "judges' clique" will also be discussed.

6. Pavlina Tesarova

„SLICE OF LIFE“ AND ITS EDUCATIONAL IMPACT ON RECIPIENTS: A CASE STUDY OF GERMAN AND JAPANESE ADVERTISING

Originally used as a theatrical term, a "slice of life" depicts real everyday life situations in which individuals, families and groups of people commonly find themselves. This concept is popular and is used worldwide; to a certain extent, it is also found in the discourse of advertising.

This paper deals with the choice and usage of specific linguistic means that are characteristic of this variety of advertising. It makes use of comparison of German and Japanese television advertising campaigns. With sociolinguistic approach and on the background of two distinctive cultures, this case study analyzes German and Japanese television advertising from the year 2013. It also discusses the educational impact of the said approach on the recipients.

7. Martin Gajdos

A comparison of effective and functional connectivity methods in fMRI

Functional magnetic resonance imaging (fMRI) is a fairly recent important method, used in neuroimaging. The primary aim of this thesis is to develop a software tool for the comparison of two methods for functional and effective connectivity estimation. The basics of magnetic resonance imaging, fMRI, basic terms of fMRI experiments and generally methods of functional and effective connectivity are described in this thesis. Specifically, the following are mentioned in detail: methods of dynamic causal modeling (DCM), Granger causal modeling (GCM) and independent component analysis (ICA). The practical implementations of DCM in toolbox SMP and ICA in toolbox GIFT are also shown. Monte Carlo simulations are performed in purpose to describe behavior of DCM and GCM in dependence on several parameters. Then the concept and realization of software tool for simulating connectivity and comparison of DCM and GCM are described.

The second part is focused on DCM, a method used to estimate effective connectivity on BOLD-fMRI data, introduced by Friston et al., 2003. The aim of this section of the thesis is to test how several properties of simulated BOLD signals, such as signal to noise ratio (SNR), sampling period (repetition time TR), and scaling of input signal, affect the robustness of Variational Bayesian inference under Laplace assumptions.

Finally, the results pertaining to DCM and GCM comparisons, the Monte Carlo simulations and tests of the robustness of Variational Bayesian inference under Laplace assumptions are discussed.

8. Michal Krcal

LEVEL OF INFORMATION SUPPORT OF REVERSE LOGISTICS IN CZECH COMPANIES: CURRENT STATE AND IMPLICATIONS

In recent years, the area of reverse logistics has been continuously attracting larger and larger scientific and managerial audience. However, some aspects of reverse logistics management have not received proper attention thus far. Information support of reverse logistics belongs to these topics which have yet to be fully developed. Although, some efforts towards studying the impact of information support on organizational performance and categorizing types of information technology used for information support have been made, the situation regarding the intensity of research in the field of reverse logistics is concentrated only in particular fields and countries. Therefore, the aim of this study is to explore the level of information support of reverse logistics among Czech companies, to compare the findings of this study with studies from other countries, and to identify possible barriers that prohibit the information support of reverse logistics.

For the purpose of obtaining the data, two open and two closed questions as a part of a larger research that was focused on reverse logistics in general were sent to 167 companies of various sizes and industries. Questions that targeted information support of reverse logistics were designed according to problems that were not satisfactorily solved during our previous theoretical research and literature analysis. The data were analyzed using descriptive statistical methods and correlations.

The results of this study show that the level of information support in the surveyed companies is below one third. Simultaneously, the bigger the company is, the more likely they are to have implemented some kind of information support. The most commonly used information support is Enterprise Resource Planning system. This fact confirms the findings of other studies.

Therefore, with regard to previous studies, that show that reverse logistics has a positive impact on organizational performance, and due to revealed low level of information support of reverse logistics in this study, Czech companies should try to increase the level of the support in order to become more competitive in foreign markets.

Keywords: reverse logistics, information support, quantitative study, descriptive analysis, Czech Republic

9. Igor Kiss

Tourist business (hereafter tourism) has an important position in the Slovak national economy. Tourism provides a considerable number of jobs in the labour market and helps with the improvement of national regions. On the other hand, tourism has the worst position in the economy, regarding to the crisis time. Tourism is the first sector that loses its consumers during an economic crisis and is often also the last sector to regain its full strength.

The main aim of our study is to give a theoretical and practical overview of the importance of the tourist business for the Slovak national economy, to show its share on the Slovak gross domestic product (GDP) and to show the main reasons why the performance is falling. Additionally, we will make suggestions on restoring its strong position in the national economy.

In the first section, we will show the position of tourism from the global and national point of view. In the second section, we will show the main problems that are currently associated with tourism is nowadays dealing with. In the third section, we will show the impact of the crisis on the tourist sector, as well as the reaction on the global economic crisis in Czech Republic, Poland and Hungary. In the fourth part, we will use economic and statistical data to evaluate the potential impact of reduced value added tax (VAT) rate and the use of travel vouchers on the tourist sector, as well as on the Slovak national economy.

10. Jakub Valcik

Title: A Key-Pose Similarity Algorithm for Motion Data Retrieval

Abstract:

Analysis of human motion data is an important task in many research fields such as sport, medicine, security research, and computer animation. In order to fully exploit motion databases for further processing, one needs effective and efficient retrieval methods to identify similar chunks of motion in the whole database. However, such the retrieval task is difficult primarily due to the spatio-temporal variances of human motions and due to the rapidly increasing volume of motion data. In this paper, we represent motion features by joint-angle rotations and propose a novel content-based retrieval algorithm not requiring any textual annotations or additional knowledge of the data. The algorithm is capable of retrieving similar motions that may exhibit spatial as well as temporal variations with respect to a query-by-example motion. We analyse the time complexity of the proposed algorithm and evaluate its effectiveness by comparing the search results against user-defined ground truth.

11. Huiping Hsu

Analysis of Czech Cultural Diplomacy: A Case of Cultural Tourism

After the collapse of communism, it has been a long time since the former socialist countries accelerated their political and economic transitions and focused on the development of small states in Central and Eastern Europe. The Czech use culture as a diplomatic strategy to highlight that Czech is part of Europe in order to change its image of former socialist countries. Moreover, Czech creates its new national image and builds Prague as a city of culture, with the aim to make Czech a cultural state. This study used historical approach, literature analysis and policy analysis to analyze the status of home support and promotion in the international world, and its impact on national interests and national image. In addition, culture is one of the soft powers of a nation and a nation encourages its cultural tourism as a method of diplomacy to achieve national interests increasing and international cooperation. Therefore, this study presents how Czech applies cultural tourism as a way of cultural diplomacy and how Czech applies cultural tourism to create its national image.

12. Lukas Chrast

EnBase technology for recombinant protein expression

Heterologous expression of recombinant proteins represents an important part of modern biotechnology. The easiest way to produce these proteins is by using bacterial expression systems.

EnBase medium technology combines cultivation in shake flask and fed-batch like culture, due to the enzymatic release of glucose from starch during the cultivation.

In this study, the expressions of eleven characterized haloalkane dehalogenases using different media were tested. Cultures in EnBase medium resulted in higher cell densities (up to OD 55). Comparisons of yields from conventional LB medium and the new EnBase B tablet medium revealed 15-fold to 35-fold improvement per liter of medium while using EnBase. At the same time, enhanced solubility was observed with EnBase B medium. Such an impact on culture productivity as well as yields reaching 2 grams per liter make EnBase B an efficient medium for biotechnological production of recombinant proteins.

13. Pavlína Balatá

Essential methods used during building business excellence in production factory

Abstract

The article is brought by description and definition methods and tools which can be used during way to excellent quality. The last century has been associated with forward-looking technology and trailblazing inventions that have made history. Yet, when tools and methods are defined, right usage Best Practice (BP) and Quality-Mindset in praxis is often depreciated. This case study provides a collection of integration methods and tools used in production factory high-level on domestic and national market. The effective sharing of BP and Q-Mindset can help a company establish benchmarks, identifying replacements for deficient practices, maintain process capability, reduce reinvention, duplication and risk, save cost through better efficiency and productivity, and avoid costly mistakes. Many models have been introduced to help secure organizational excellence.

Among these models, BP is able to improve the principles of Total Quality Management (TQM) for production organizations. The enhancement of organizational quality knowledge and improvement of quality knowledge management is one of the important criteria of BP. The aim of this study was to evaluate the quality of knowledge management in one of the production factory based on the Excellence model (with confirmation European Foundation for Quality Management (EFQM)).

Methods: This qualitative and cross-sectional descriptive-analytical study was conducted in 2011. The statistical population included managers, employees and people from production, together with documents and processes of national industrial organization with sub-branches in the Czech Republic. Data were collected using the standard checklist of excellence model created by following company (the version of 2010-2011). Data were analyzed based on the Network analysis (used from reason objective determined whether elements of the quality mindset influence the observed elements and profile these elements according information, creating influence analysis with numbers active sum, passive sum, every element had assigned position (one point) in a portfolio matrix). The results were plotted and analyzed using Excel 2007 software based on the obtained scores in the matrix. Results: Thirst the studied company (management level) gained 81 (81, 46%) scores out of 100 points of the thirst section "Company goals" criterion. In addition, the gained 66 (66,85%) of the score of "Company standards", 47 (47,75%) of the score of "Company cooperation", 67 (67,75%) of the score of "Company Leadership" and total results was 62 (62,02%) of the score of "Q-Mindset of the company". In production (employee) was 89 (89,11%) of the score of "company goals", section "information flow" was scores 91 (91,32%) and section "company standards was score 79 (79,36%). Conclusion: The studied company has taken appropriate measures in infrastructure development by the definition of Quality - Mindset of the company, but promotion in leadership and cooperation and efficient use of newly built criteria teams and new departments (which will be developed best praxis) is recommended.