

ABSTRACTS

1. Vratislav Havlík

The aim of the thesis „The Journalist Jan Hloužek before the National Court“ is to analyse the case of the Czech journalist Jan Hloužek, who was tried by the National Court in Brno from 9 and 23 April 1947. The Court focused on Hloužek’s activities during the period of the Protectorate of Bohemia and Moravia, while he was working as editor in chief for the newspaper Ostravská národní práce.

The research was based above all in describing and analysing the court file from 1947, which is deposited in the National archives in Prague. Postwar press articles were also included. Hloužek was found guilty by the Court for his journalistic collaboration and sentenced to 18 months in prison. When he was found guilty, Hloužek had already served two years in jail and therefore he was released after the verdict. During World War II, Hloužek wrote articles supporting Germany, but his ideas were inclined towards the Czech people. He declared himself to be a victim, because he consciously accepted the responsibility by writing the articles. The results confirmed that Hloužek was not an activist but a conformist.

2. Drahomíra Knitlová

Kinetics of changes in mitochondrial morphology and ATP production in bovine oocytes with different meiotic competence during in vitro maturation

This study was designed to characterize the differences in chronological changes in morphology of mitochondria and production of ATP in bovine oocytes, derived from small and medium follicles with different atresia level. Oocytes recovered from medium follicles (MF, 5-9 mm) by aspiration and from small follicles (SF, <5 mm) by total dissection of ovaries, were categorized according to morphological qualities of their cytoplasm in healthy and light atretic groups. Respiring mitochondria were stained immediately after isolation (in Germinal Vesicle stage) and then after 3, 7, 16 and 24 hours (in Metaphase II stage) of in vitro maturation. Mitochondrial morphology was then assessed with the help of laser scanning confocal microscopy and the proportion of oocytes with clustered mitochondria was counted for each category. At the same time intervals, the production of ATP was measured using luminometry in samples containing single oocytes. Both parameters were examined in 40 oocytes in each group. The highest frequency of clustered mitochondria was found in both healthy and light atretic MF oocytes between 3 and 7 hours of maturation. In SF oocytes clustered mitochondria appeared in significantly lower proportions after 16 hours of maturation in the healthy group and after 24 hours of maturation in the light atretic group. The production of ATP continuously increased with time of maturation in all groups, however in SF oocytes the levels were still significantly lower than in MF oocytes, without regard to their atresia level. The increase was accelerated in all groups after 16 hours of maturation.

The results confirm that the process of cytoplasmic maturation is quicker in MF than in SF oocytes and in healthy than in light atretic groups. Different results of experiments with mitochondrial morphology and ATP production suggest that there is no relation between formation of mitochondrial clusters and content of ATP in oocytes.

3. Michal Kumstát

Purpose: The aim of this study is to evaluate the differences in diet-induced thermogenesis (DIT) between two liquid meal-replacement shakes of different macronutrient composition: high protein (HP) and high carbohydrate (HC) meal.

Methods: Four male subjects ($26\pm 3,7$ y, body mass index $24,6\pm 1,7$ kg.m⁻²) completed a crossover, single-blind, quasi-experimental study. During two separate occasions (non-consecutive days) indirect calorimetry measurement was taken. Production of CO₂, consumption of O₂ and respiratory exchange ratio were monitored before and after ingestion of two isocaloric liquid meals, with energy content of 7 kcal/kg per fat free weight. Postprandial period measurement lasted 180 min.

Results: The testing meals caused an immediate and persistent thermic effect. The total DIT calculated in HP and HC meals was: $51,8\pm 17,2$ kcal/180 min and $32,13\pm 13,4$ kcal/180 min, respectively ($p = 0,14$). No statistically significant difference in postprandial energy expenditure between HP ($0,29\pm 0,10$ kcal.min⁻¹) and HC ($0,18\pm 0,07$ kcal.min⁻¹) meals was observed ($p = 0,14$). Elevated values of energy expenditure did not return to baseline after 3 hours. The DIT, expressed as percentage of energy consumed, averaged $8,7\pm 2,9$ % (HP meal) compared to $5,4\pm 2,3$ % (HC meal) ($p = 0,14$).

Conclusions: Results indicate that macronutrient composition plays a significant role in metabolic responses. We conclude that increment in energy expenditure above baseline after ingestion of either protein-like or maltodextrin-like test meals is comparable. Due to a limited number of subjects involved, further research is needed to validate our results.

4. Nad'á Satková

Jiří Svoboda's directorial methods

This study discusses Jiří Svoboda's way of directing, summarizing the characteristic principles of his directorial methods. Based on the production, *End of the Carnival*, the study presents a detailed description and analysis of his methods.

Sources deposited in both private and public archives were explored. They included a script transcribed from a preserved audio recording, accompanied by photographs and reviews in period newspapers. A scenic form of the production, *End of the Carnival*, staged at Oldřich Stibor's Theatre Olomouc in 1963, was reconstructed on the basis of these sources and consequently the analysis was accomplished in terms of five basic elements of stage production.

Jiří Svoboda's productions were influenced by politics and ideology, because he was working from the 1950s to the 1980s, however the analysis proved that he managed to press his suggestions to his productions. The study compared Svoboda's productions with works of his contemporaries and demonstrated that main differences among them were based on principles of stage design and work with props and their metaphorical changes.

The results confirm that Jiří Svoboda succeeded in fighting against the political system and made his own independent directorial style different from his contemporaries.

5. Daniel Továrňák

High-Performance Event Pattern Detection

Event pattern detection is used in a broad spectrum of applications including algorithmic stock-trading, intelligent traffic systems and network monitoring as a part of every event processing system. However, the performance requirements for such systems (e.g. throughput, latency) are steadily growing, as the complexity and amount of events that need to be processed is increasing.

In our work we are exploring high performance pattern detection over event streams. Rather than focusing on optimization of known algorithms running on sequential hardware we are concentrating on utilization of highly parallel commercial-off-the-shelf Graphical Processing Units (GPUs) using NVidia CUDA. There are several parallel algorithms for pattern matching of strings known at the time. However we show that there are significant differences between these two problems.

We propose a highly parallel pattern detection algorithm and discuss its design and structures, as well as pitfalls of such solutions. Also we discuss implementation-specific details and optimizations with regard to the NVidia CUDA architecture possibilities and limitations. In particular the reduction of CPU to GPU (and vice versa) memory transfer is debated.

To evaluate our solution we performed several detailed throughput and latency benchmarks with taking into account a variety of factors (e.g. pattern selectivity, pattern complexity, number of patterns). Based on the results we conclude that usage of highly parallel GPU-based pattern detection can introduce extensive performance improvements to the event processing systems.

6. Jiri Hiess

ATKIS/ZABAGED improvements and next European Spatial Data Infrastructures needs

The latest achievements in Saxonian – Czech cooperation led to better harmonisation of basic geodatasets maintained in accord with particular national legal systems and technical standards. The geodatasets ATKIS and ZABAGED originally related to the scale 1 : 10 000 are useful both for scientific and practical purposes.

We have to develop the expiring concept of INSPIRE and discuss the future needs and requests of advanced European Spatial Data Infrastructure (SDI). The advanced concept „INSPIRE+“ reflects the existing national and subnational SDIs and adds new ideas and relations, which highlight forthcoming and underestimated tasks, both for Geo-information science and technologies, and for applied research. The long-time objectives are to develop European excellence, to improve the info-society infrastructural environment, to support the related services and business, and to intensify the international and cross-border cooperation.

The paper concludes with open questions and particular project and research outputs to contribute to the ongoing expert discussion.