



BOOK OF ABSTRACTS

THE EIGHT MEETING OF MASI - RESEARCH NETWORK ON METHODOLOGY FOR
THE ANALYSIS OF SOCIAL INTERACTION
UNIVERSITY OF ICELAND
5-6TH SEPTEMBER
2014

PROGRAMME

September 5th

STAPI room 108 - Hringbraut 31, 101 Reykjavík

Chair: Gudberg K. Jonsson

GMT	
09.00-09:10	Welcome address – A. Blanchet
09:10-09:30	Emerging trends and new developments in methodology for the analysis of social interaction - M.T. Anguera
09:30-09:50	N-Dimensional T-patterns in Space and Time: from Stardust to DNA, Neurons, Language, Culture and Religion – M.S. Magnusson
09:50-10:20	T-pattern analysis of social interaction in rats- M. Casarrubea <i>[online]</i>
10:20-10:50	Detecting deception when manipulating cognitive load: T-pattern analysis of nonverbal behaviour – B. Diana, M. Elia & V. Zurloni
10:50-11:20	Interactive Dynamics of Attacking Play in Elite Handball – D. Lozano, O. Camerino & R. Hileno
11:20-11:50	Telling the Right Science Stories – the emotional and cognitive processing of scientific TV – D. Unz & F. Schwab
11:50-12:20	An open question: how to merge heart rate values and motor t-patterns from a multilevel mixed methods design? Exercise programmes for the elderly as an example – M. Castañer, G. Saüch, O. Camerino & M.T. Anguera

12:20-14:20

Lunch

September 5th

STAPI room 108 - Hringbraut 31, 101 Reykjavík

Chair: Valentino Zurloni

14:20-14:50	More or less, a matter of presence – T-patterns, game difficulty and presence in a shooter game – M. Brill, G.K. Jonsson & F. Schwab
14:50-15:20	Assessing tactical performance in team sports – A. Lopes, S. Fonseca, H. Shitrit, R. Leser & A. Baca <i>[online]</i>
15:20-15:40	Determinant factors in the 6x6 organized attack in high performance handball game – Research project – C. Cruz, A. Lopes, S. Fonseca, H. Shitrit & A. Baca <i>[online]</i>
15:40-16:00	Monitoring improvement in a child with pervasive developmental disorder: an observational study – E. Escolano, M. Acero & M. Herrero <i>[online]</i>
16:00-16:30	Multi-Neuron Interactive T-Patterns in the Brain and their Evolution in a Subject Nearing Terminal State –M.S. Magnusson & A. Nicol
16:30-16:50	Coffee / Tea
16:50-17:10	Analysis of mother-child teaching interaction patterns during first development – C. Quintana <i>[online]</i>
17:10-17:30	Emission and spatiotemporal distribution of behavioral patterns in captive vervet monkeys (<i>Cercopithecus aethiops pygerythrus</i>) at the Guadalajara Zoo - G.A. Ortiz & M.J.L. López <i>[online]</i>
17:30-17:50	Analysis of kinesic and proxemic paraverbal communication in fitness instructors using time patterns (T-patterns) – M. Castañer, O. Camerino, R. Hileno, J. Alves, S. Franco, J. Rodrigues & M.T. Anguera
18:10-18:30	T-patterns detection for a triad motor game: The maze – M. Pic-Aguilar, G.K. Jonsson, C.R. Sánchez-López & V. Navarro-Adelantado <i>[online]</i>
18:30-18:50	Data conversion app from ELAN to THEME – K. Ciecierski and K. Juszczak
18:50-19:10	An overview of recent research involving the t-pattern model and Theme – G.K. Jonsson & M.S. Magnusson

September 6th

ODDI room 106, Sturlugötu 3, 101 Reykjavík

Chair: Marta Castañer

GMT	
09:00-09:30	Expanding the Study of Internet Gambling Behavior – H. Milkman, H.M. Gray, D.A. LaPlante, H.J. Shaffer & G.K. Jonsson
09:30-10:00	Systematic Self-Observation of Work Intervention for Reducing Musculoskeletal Risk Among Workers: Design of Feedback with Theme – M. Portell, A.M. Señé & M.T. Anguera
10:00-10:30	T-pattern analysis in soccer: Observing regularities in home-away matches – V. Zurloni, B. Diana & M. Elia
10:30-11:00	Analysis of 2vs2 in 6vs6 organized attack in team handball. A comparative study between male and female in high level competition – D. Sousa, J. Prudente & P. Sequeira
11:00-11:30	<i>Coffee/tea</i>
11:30-12:00	Detection of T-Patterns and complementary Log-Linear analysis – M.T. Anguera, P. Sánchez-Algarra & G.K. Jonsson
12:00-12:30	Understanding Film Art: Moments of Impact and Patterns of Reactions – M. Suckfüll & D. Unz
12:30-12:45	Panel discussion and closing remarks – M.T. Anguera, A. Blanchet & M.S. Magnusson
12:45	<i>Farwell lunch</i>

Scientific Committee: M. Teresa Anguera, Alain Blanchet, Harvey Milkman, Giuseppe Riva, Frank Schwab, Claude Baudoin and Magnus S. Magnusson.

The Organizing Committee: Marta Castañer, Gudberg K. Jonsson, Valentino Zurloni, António Lopes, Gerardo Ortiz and Carmen Quintana.

WELCOME ADDRESS

A. Blanchet

University of Paris

No abstract

EMERGING TRENDS AND NEW DEVELOPMENTS IN METHODOLOGY FOR THE ANALYSIS OF SOCIAL INTERACTION

M.T. Anguera

University of Barcelona

No abstract

N-DIMENSIONAL T-PATTERNS IN SPACE AND TIME: FROM STARDUST TO DNA, NEURONS, LANGUAGE, CULTURE AND RELIGION

M.S. Magnusson

University of Iceland

No abstract

T-PATTERN ANALYSIS OF SOCIAL INTERACTION IN RATS

M. Casarrubea

Laboratory of Behavioral Physiology

University of Palermo, Italy

Abstract

The social interaction test is an important tool to study anxiety in rodents. It has been the first behavioral assay using ethologically relevant sources of anxiety and a natural form of behavior as the dependent variable. In general, the dependent measure is the time that the two tested subjects spend in interactive activities (for instance, grooming or sniffing the partner). The rationale is that an increase of the interaction of the two rodents is indicative of a reduced anxiety; on the contrary, a decrease of the interaction indicates an anxiogenic condition. However, albeit the number of articles using this test is at the present time considerable, surprisingly scanty data take into consideration the temporal structure of the behavior of the two interacting rodents. A study in this direction could shed new light on the understanding of rodent's social behavioral dynamics.

Together with classic quantitative evaluations the present study has employed T-pattern analysis to assess the behavior of 9 pairs of male Wistar rats during 15 minutes of social interaction. An ethogram encompassing 10 intra-subject elements (i.e., activities performed by the subject, without the participation of the partner) and 13 inter-subject elements (i.e., activities defined on the basis of the participation of the two rodents) has been utilized. Higher durations and percent distributions of intra-subject activities suggest a prevalence of a non-interactive behavior. Actually, a different situation emerges when the multivariate analysis is performed. T-pattern analysis allowed the identification of four different categories of T-patterns consisting of: (a) exclusively inter-subject events; (b) both inter- and intra-subject events; (c) intra-subject events performed by the two rats; (d) intra-subject events performed by one of the two rats. Overall, sequences implying an interaction between the two rats represent about 85% of the comprehensive behavior. These preliminary data suggest that T-pattern analysis could represent a valuable approach to study hidden characteristics of rodent's social behavior.

DETECTING DECEPTION WHEN MANIPULATING COGNITIVE LOAD: T-PATTERN ANALYSIS OF NONVERBAL BEHAVIOR

Barbara Diana, Massimiliano Elia, & Valentino Zurloni

Department of Human Sciences for Education
University of Milan Bicocca

Abstract

In more than thirty years of study about deception, most of the research and theoretical effort has been concerned with analyzing the communicative processes and performances underlying deceptive messages. One of the most well documented claims in the literature on deception is that humans are poor detectors of deception. Such human fallibility is exacerbated by the complexity of both deception and human behavior. A wide variety of approaches to discover deceptive statements have been attempted. The approaches can be very different from each other, but all of them aim to identify some cues of deceptiveness and to verify their correlation with deceptive and truthful communication. We modeled our approach to study deceptive behavior according to these factors: a) multimodal data collection; b) cognitive load manipulation; and c) T-pattern analysis. The aim of our contribution was: a) to examine whether the overall organization of nonverbal behavior differ when people report truthful vs. deceptive messages; b) to verify if such differences are larger in high cognitive load conditions; and c) to investigate whether discerning between lies and truth could be easier using T-pattern analysis instead of single cues detection. A 2 x 2 experimental design was used in which the two independent variables were cognitive load (manipulated or not) and veracity status (lie or truth). Cognitive load was manipulated by a dual task procedure, in which the second task consisted in the memorization of phrases. Thirty six participants balanced by gender were randomly assigned to one of the experimental conditions. Multimodal data collection involved digital recordings and encodings of the following nonverbal behavior systems: gaze, facial micro movements, head movements, gestures, legs movements and posture shifts. We are currently analyzing datasets with Theme 6 beta software, which detects the temporal and sequential structure of datasets, revealing repeated patterns that may occur, regularly or irregularly, within a period of observation (T-patterns). Results are ongoing. Implications for future research on deception detection will be further explored.

INTERACTIVE DYNAMICS OF ATTACKING PLAY IN ELITE HANDBALL

Demetrio Lozano, Oleguer Camerino and Raúl Hileno

Human Motricity Laboratory INEFC-Lleida, University of Lleida, Spain

Abstract

This study aimed to analyse the variables that influence attacking play in elite handball from an ecological perspective. Different tactical systems of positional attacking play and counterattacks were examined in relation to the following variables: the score, the type of defense, the number of attacking and defending players involved, the zone in which the move ended and the outcome of the move. An observational methodology was used and an ad hoc observation instrument (SOCTO) was incorporated into the LINCE software. A sample of 19 matches that were played during the final stages of the men's 2011 World Championship, the 2012 European Championship, and the 2012 Olympic Games were analyzed. The analysis of descriptives, chi-squared (χ^2) values and adjusted residuals was complemented with a sequential analysis of T-patterns. Results confirm the nonlinear self-organization of attacking dynamics in men's elite handball. These dynamics involve the use of basic tactical principles against open defensive systems and complex tactics against closed defenses. The latter was the most commonly used tactic when there was an equal number of attacking and defending players in the first sequence of positional attacking play from the intermediate zone between the 6 meter and 9 meter lines, and with moves ending in a free throw for the attacking team.

Keywords: interactive attacking dynamics, handball, systemic-ecological competitive contexts, mixed methods

References

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TELLING THE RIGHT SCIENCE STORIES: THE EMOTIONAL AND COGNITIVE PROCESSING OF SCIENTIFIC TV

Dagmar Unz and Frank Schwab

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Medienpsychologie, Universität Würzburg

Abstract

For most people mass media are relevant and credible sources for acquiring scientific information. Nevertheless, there are consistent misbeliefs about science. Until now, very little is known about the psychological mechanisms that underlie the reception of scientific TV content. Therefore, first, we examined the overall effects of entertaining presentational styles that are embedded in TV shows to attract the audience, but are sometimes also viewed as inappropriate, suspected to distract and avoid deep rational processing. Additionally, we ask how the audience deals with the fragile status of scientific evidence. The results indicate that entertaining presentation styles (narrative structure and human-interest frames) affect positive emotions and knowledge acquisition, at least for some domains. However, the presentation of the fragility of science (by means of verbalization like “may be”, “it could be”) does lead to rather negative effects regarding knowledge acquisition. In order to explain the elicitation of emotional responses induced by the entertaining presentational styles and the presentation of fragility more deeply, we analysed patterns of facial reactions (as indicators of emotional processes) by using the T-pattern-detection of Theme. The results should help to discover media techniques that are conducive to supporting the development of an adequate scientific understanding among teenagers.

AN OPEN QUESTION: HOW TO MERGE HEART RATE VALUES AND MOTOR T-PATTERNS FROM A MULTI-LEVEL MIXED METHODS DESIGN? EXERCISE PROGRAMS FOR THE ELDERLY AS AN EXAMPLE

M. Castañer, G., Saüch, O. Camerino, and M.T. Anguera

Human Motricity Laboratory, INEFC-Lleida, University of Lleida, Spain

Abstract

A mixed methods design was used to analyse the exercise intensity of programs for the elderly through heart rate intensity and t-patterns detection of motor behavior, simultaneously and in context. The Observational System of Motor Skills: OSMOS (Castañer et al., 2009) in an ad hoc version OSMOS_in context (Castañer & Saüch, 2014) and heart rate monitors (Polar RS800) tabulated according to the Classification of Exercise Intensity of the American College of Sports Medicine (ACSM, 2011) were applied. Twenty female participants, age 81 ± 4.02 years of the same exercise program were studied over a period of 50 minutes each. The mixed methods design known as Multilevel Triangulation (Camerino et al., 2012) was used. Quantitative data obtained from heart rate monitors (Polar RS800), and qualitative data on patterns of motor behaviour were collected and triangulated. The data was organized according to the category system set out in OSMOS (Castañer et al., 2009) and sequentialized (into T-patterns) by means of Theme 6.0. Results indicated that heart rate detection was directly related to the pattern of motor behavior detection namely locomotion, manipulation and stability (Castañer et al., 2009), as well as to the capacities of resistance, strength and speed. Research did not reveal how to merge heart rate values and motor T-patterns. We believe this kind of research design can help to ensure that exercise programs are physiologically tailored to the heart rate recommended by the ACSM with the added values of T-pattern detection for all type of participants.

References

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MORE OR LESS, A MATTER OF PRESENCE: T-PATTERNS, GAME DIFFICULTY AND PRESENCE IN A SHOOTER GAME

Michael Brill, Gudberg K. Jonsson, and Frank Schwab

Medienpsychologie, Universität Würzburg &
Human behaviour Laboratory, University of Iceland

Abstract

Video games as multimodal interactive media provide a fertile ground for rich subjective user experiences. We focused on the subjective experience of presence that is seen as a state of neglecting the real environment and accepting the media environment as the primary reference frame (Wirt et al., 2007). In the conceptualization used for the present study, presence is thought of as a construct with the two facets: self-location, i.e., feeling oneself present in the media environment; and possible actions, i.e., interaction possibilities being determined by the media content and not by the real environment. We therefore hypothesized that a user who feels present in the medium would also act more in accordance with the medium's interaction requirements. We thus expected to find more patterns in gameplay data for players high in presence than in those of players low in presence. To test this assumption we asked players to play the shooter game Call of Duty: Modern Warfare 2. Each participant played the game in easy, medium and hard levels of difficulty and then answered a presence questionnaire (MEC-SPQ, Wirth et al., 2008). Events for pattern detection were death of the player's avatar, the player's avatar being hurt, death of enemy game characters, a player blinks, and reloading of the player's gun. According to their presence questionnaire scores, players were divided into high and low presence groups for pattern analysis. Pattern detection showed an interaction of difficulty and level of presence for both number of different patterns and pattern occurrences. The most pronounced difference was found in the medium level of difficulty, but contrary to the hypothesis it was the low presence players who featured more different patterns and more occurrences of these patterns, as well. Possible explanations to be addressed in future studies involve another subjective user experience, the concept of flow, and from evolutionary psychology the behavior-diversification proto-cognition theory of play behavior (Ohler & Nieding, 2006).

ASSESSING TACTICAL PERFORMANCE IN TEAM SPORTS

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³Department of Biomechanics, Kinesiology and Applied Computer Science, Centre for Sport Science and University Sports, University of Vienna, Austria

Abstract

Positional data has been considered in sports science research studies to derive reliable metrics to assess a team and its players' tactical behavior in team sports. The information captured by means of this approach, allied with more conventional data (e.g., categorical systems) has the potential to improve the understanding of players' organization as a consequence of collective and individual tactics. The aim of this presentation is to describe the results of some studies where a few spatial metrics have been tested as possible candidates to measure tactical behavior. This has been combined with an observational methodology in different team sports such as futsal, handball and basketball, along with different phases of the game (e.g., offensive and defensive). The purpose is to discuss the contribution of these studies for practical game and behavior analysis as aids for scouting and coaching.

Keywords: team sports, spatial metrics, tactical assessment, observational methodology

DETERMINANT FACTORS IN THE 6X6 ORGANIZED ATTACK IN A HIGH PERFORMANCE HANDBALL GAME – RESEARCH PROJECT

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³Department of Biomechanics, Kinesiology and Applied Computer Science, Centre for Sport Science and University Sports, University of Vienna, Austria

Abstract

It is necessary to understand the determinants of success for the organization of training and preparation of the handball game process. Recent studies in handball seek to detect behavioral patterns of players using the analysis of discrete variables. However, the results of these studies have not identified key factors for the success of organized attack due to the subjective relationship established between performance and such variables. Based on the theory of dynamical systems, it is possible to use methods that enable an objective identification of determinants in the organized attack in high performance handball games, complementing the existing information of the above referenced variables. Thus, the aim of this study is to identify determinants of success in high performance handball games considering a categorical system of key variables and analyzing patterns of occurrence. Additionally, positional data will be collected for measuring a team's tactical organization. The sample is sequences of the 6x6 organized attack phase.

A sequential analysis for the detection of patterns will be conducted using Theme software. Subsequently, nonlinear techniques will be considered for analyzing a team's tactical organization. Determinants of success will be suggested based on the analyses above.

Keywords: handball, organized attack, determinants, patterns, tactical modeling

MONITORING IMPROVEMENT IN A CHILD WITH PERVASIVE DEVELOPMENTAL DISORDER: AN OBSERVATIONAL STUDY

Elena Escolano Pérez , Marian Acero Ferrero and Marisa Herrero Nivelá

Department of Psychology and Sociology. University of Zaragoza

Abstract

Executive function concept involves high cognitive mechanisms towards a goal. This term covers interactive skills like planning, inhibition, flexibility, working memory or monitoring. Among all of them, monitoring processes is one of the most important. It provides information about the behavior deviations in relation to the target and it allows for correction of the error before obtaining the final result. Recent reviews detect difficulties in executive functioning in individuals with autism in all ages and cognitive levels. Specifically, evidence regarding monitoring deficits shows the existence of certain difficulties. This study aims to show monitoring progress in a child of five years and nine months with pervasive developmental disorder using a pilot program to improve executive functions. Observational methodology is the best suited methodology according to the participant's age and his personal characteristics. In order to analyze the data, Theme software was used to detect repetitive temporal patterns (T-patterns). The results indicate that monitoring behaviors continue to improve and the adult intervention decreases as the intervention proceeds. The child takes the initiative of his actions that demonstrates more autonomy and rigor in the end of the intervention. The importance of the observational methodology is highlighted in this study. It allows the construction of a powerful ecological tool to assess cognitive process indicators in young children with special features.

Keywords: childhood, executive functions, intervention, monitoring, pervasive developmental disorders, observational methodology

MULTI-NEURON INTERACTIVE T-PATTERNS IN THE BRAIN AND THEIR EVOLUTION IN A SUBJECT NEARING TERMINAL STATE

Magnus S. Magnusson¹ and Alister Nicol²

¹University of Iceland & ²University of Cambridge, UK

Abstract

This paper concerns a basic function of the brain. There is a longstanding consensus that interactions between neurons are essential and that repeated interactions between the same neurons are the basis for learning. However, some controversy still remains regarding the existence of multi-neuron real-time patterns as detection attempts using a very simple pattern type has left doubt regarding statistical significance. A different pattern type called T-pattern (Magnusson, 1996, 2000) and corresponding detection software (ThemeTM, PatternVision) has allowed the detection of highly significant complex neuronal interaction patterns of up to fifteen neurons. A microchip in the rat's olfactory bulb recorded spikes simultaneously from typically over 100 neurons with a temporal resolution of $3 * 10^{-6}$ s. The T-pattern type, a binary-tree, can be seen as a statistical pseudo-fractal characterized by scale independent self-similarity over a number of orders of magnitude. An evolution algorithm uses pattern competition to detect increasingly complex patterns that vary in complexity and number depending on physiological conditions.

ANALYSIS OF MOTHER-CHILD TEACHING INTERACTION PATTERNS DURING FIRST DEVELOPMENT

Carmen Quintana

University of Guadalajara, Mexico

Abstract

Observation of mother-child interactions is a central issue in the analysis of language acquisition. A mother's behavior influences the development of cognitive skills in the child, by prompting him/her through many different task demands in the context of their daily interaction. Longitudinal data on the observation of one middle class mother-child dyad videotaped during free play in order to show the child's adjustment to the mother's demands is presented. The recordings were analyzed with a categorical system developed to observe patterns of mother-child linguistic interactions and their relations with specific settings. The possible relationship of those patterns with the achievement of cognitive skills in different episodes is discussed.

Emission and Spatiotemporal Distribution of Behavioral Patterns in Captive Vervet Monkeys (*Cercopithecus Aethiops Pygerythrus*) at the Guadalajara Zoo

Gerardo Alfonso Ortiz Rueda¹ and María José López López²

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Abstract

Ortiz, Correa and Gallardo (2006) and Ortiz (in review) propose that the amount and distribution of geophysical, geo-ecological and intra-interspecific interaction factors have the possibility to modulate behavioral patterns. Thus, it might be expected that an organism exposed to diverse environments (i.e. primates under singular life conditions) embody different individual behavioral patterns, independently of its species membership, which allow it to adjust to environmental changes. In order to study this behavioral adjustment to different conditions, a systematic observation of the behavior displayed by a captive group of vervet monkeys (*Cercopithecus aethiops pygerythrus*) detecting the temporality and spatiality of behavioral patterns was conducted. A comparison was made with a previous study by Ortiz & Partida (in preparation) in which the same group of monkeys were in a different enclosure. Results showed that resting behaviors were predominant in all four subjects, whereas locomotion represented ten percent of the time spent by the group. We compare both the temporal and spatial distribution of behavior emitted by group, subject and number of visitors at the two enclosures (2012 vs. 2013). The study is discussed in terms of the possible functional relevance of geo-ecological factors in the spatiotemporal behavior of captive animals.

ANALYSIS OF KINESIC AND PROXEMIC PARAVERBAL COMMUNICATION IN FITNESS INSTRUCTORS USING TIME PATTERNS (T-PATTERNS)

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¹ Human Motricity Laboratory, INEFC-University of Lleida, Spain

² Escola Superior de Desporto de Rio Maior (ESDRM), Instituto Politécnico Santarém, (Portugal)

³ Faculty of Psychology - University of Barcelona (Spain)

Abstract

The aim of this study was to analyze paraverbal communication and communication patterns in fitness instructors in four disciplines: body step, toning, aqua fitness, and indoor cycling. Using observational methodology, we filmed 12 workout sessions (3 for each discipline) led by twelve expert instructors (all women, with a mean age of 31 ± 6.14 years). The sessions were observed using the SOCIN-fitness and SOPROX-fitness observation instruments and analyzed using the LINCE multiplatform sports analysis software. Descriptive results and time patterns (T-patterns) yielded by SPSS v.20.0 and Theme 5.0, respectively, revealed marked variability in kinesic and proxemic behaviors in all four disciplines in addition to a predominance of gestures marked by the execution of the activities, with little interaction and participation with members of the class. Optimization of communication between fitness instructors and participants is key to improving motivation and acceptance of fitness programs among the general population.

Keywords: nonverbal communication (NVC), observational methodology, T-patterns, fitness

References

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T-patterns Detection for a Triad Motor Game: The Maze

Miguel Pic-Aguilar, Gudberg K. Jonsson, Carmen R. Sánchez-López, and Vicente Navarro-Adelantado

La Laguna University & Iceland University

Abstract

In physical education, triad motor games are a clear minority amongst their traditional dual versions. This preference for dual sports, rather than other structures such as the triad (Caplow, 1956), transcends the field of motor games. To investigate this subject and organize the registration of motor behavior, we have been helped by the praxiology (Parlebas, 1981, 1986). Motor behavior records were compiled using the Lince software (Gabín, Camerino, Anguera and Castañer, 2012). The sample was composed of thirteen boys and eight girls. All twenty-one players, aged between twelve and thirteen, enrolled in the 1^o course of ESO (Spanish Secondary Education), practiced a modified version of “the maze” (Navarro, 1995). An ad hoc category system was built. This was based on the original game rules and role-play system: ‘chaser’, ‘runaway’, ‘prisoner’, ‘liberating’. Motion behaviors for each of the roles resulted in a combination of seventeen categories following the team $A \leftrightarrow B \leftrightarrow C \leftrightarrow A$ as a capture formula. The procedure to play the game was to first explain it and then practice before being recorded, so we could resolve any doubts. After that, we made the record for three minutes ‘from beginning to the end’ (Anguera, 1990). Observational methodology allowed the analysis of the players’ motion behavior, that after having reached the expected reliability (Pic, Navarro, 2014) the study figures could be extrapolated to other samples. Through the Theme software, (Magnusson, 1996, 2000, 2006) T-patterns occurring during the game were detected. This showed stronger (game) structures and interactions, helping us to explain the particularities of the team interactions associated to the triad.

Keywords: triad motor game, t-patterns, methodology, praxeology

DATA CONVERSION APP FROM ELAN TO THEME

Kamil Ciecierski and Konrad Juszczyk

Adam Mickiewicz University

Abstract

When multimodal communication researchers collect recordings of people they create an annotated corpora of recordings. One of popular and professional tools for the creation of complex annotations on video and audio resources ELAN provided by MPI (Lausberg & Sloejtes 2009). When multimodal communication researchers need THEME (Magnusson 2000) to discover hidden patterns of behavior they may export ELAN file (.eaf in XML format) to TXT file as a table. However, THEME needs raw data in specific format plus vvt.vvt file. This is why we decided to propose an application for data conversion from ELAN to THEME.

The beta version works as a dialogue box in WINDOWS. After loading the .eaf file the user can choose tiers to be exported. The app produces the list of all unique behaviors on each tier and then propose unique abbreviations for those behaviors. The user may decide on abbreviations of behavior names. Then the vvt.vvt and raw data file are generated automatically. Both files are readable in THEME 6 (beta edu version) and patterns are found in tested ELAN files. The app will be available soon for free use for all ELAN and THEME users.

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AN OVERVIEW OF RECENT RESEARCH INVOLVING THE T-PATTERN MODEL AND THEME

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No abstract

EXPANDING THE STUDY OF INTERNET GAMBLING BEHAVIOR

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Abstract

As rates of Internet gambling participation increase worldwide, so too does the need to understand how people engage in this form of gambling. This study represents the first examination of actual Internet gambling records within Iceland, a Nordic country with an active Internet lottery market that imposes strict regulations on gambling operator licenses. We summarized electronic betting records of a cohort of subscribers to the Internet betting service provider Islensk Getspa. We observed that the typical subscriber bet approximately three days per month and made fewer than two bets per gambling day, each worth approximately the equivalent of \$4 US. Subscribers lost the bulk (96 %) of the amount they wagered, for a total loss of approximately \$40 across the two-year window of observation. Although these observations do not support the view of Internet gambling as an activity that is inherently risky for the typical subscriber, we did observe discontinuity across the distributions of gambling behavior, with the top one (1%) of subscribers making more than three bets per day. Preliminary results from pattern analysis of individual gambling behavior will be presented.

SYSTEMATIC SELF-OBSERVATION OF WORK INTERVENTION FOR REDUCING MUSCULOSKELETAL RISK AMONG WORKERS: DESIGN OF FEEDBACK WITH THEME

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Abstract

Work-related musculoskeletal disorders are the main cause of absenteeism in Europe and training on healthy posture is essential in preventing this. Efficacy of classical interventions has been called into question, mainly in reference to those based on general training, since the benefits gained are not transferable to distinct tasks. Systematic Self-Observation of Work (SsObserWork) is proposed as a new multi-component training program aimed at educating workers in relation to risks associated with the manual handling of loads and to encourage new skills in workers that modify their behavior and increase their competence in performing the manual handling in a safe manner. The SsObserWork project combines systematic self-observation and systematic hetero-observation. Self-observation is an intervention component addressed towards increasing workers' competence in identifying their risk-related behavior and towards encouraging healthy posture. Hetero-observation has a dual function: (1) to assess changes in behavior, and (2) to produce the basis for creating feedback that workers will receive on their own postural behavior. This feedback is another intervention component intended to increase workers' ability to change patterns of risk-related posture. In this respect, Theme software is seen as the provider of essential information in creating feedback content. This paper focuses on justifying the selection criteria of T-patterns included in feedback for workers. Observational methodology was used. The study design was ideographic, multiple-session (follow-up), and multi-dimensional. The main dimensions observed were eight body segments involved in the manual handling of loads. An observational instrument was created with nine criteria and thirty-eight categories; Lince software was used as the recording tool. Theme 6 (Edu BETA version) has been used to detect statistically significant time patterns in the behavioral sequences of sixteen industrial workers. The replicability of a set of criteria for selecting statistically significant T-patterns has been analyzed. The paper summarizes the T-patterns obtained for each worker. Selection criteria, jointly with a feedback proposal, are also discussed. Results suggest that Theme software provides an innovative approach to creating feedback in interventions guided by the principles of participatory ergonomics.

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T-PATTERN ANALYSIS IN SOCCER: OBSERVING REGULARITIES IN HOME-AWAY MATCHES

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Abstract

Sports performance consists of a multiple series of strategies that tend to follow one another. Performance analysis in team sports is usually focused on primary (fundamental skill execution), secondary (scoring), and tertiary (match result) outcomes. While there is general agreement over measuring secondary and tertiary outcomes, literature does not show a unanimous agreement over a unique measure of the primary level of performance. The aim of this study was to investigate primary performance outcomes through an analysis of temporal patterns of soccer behaviors during attack actions. In particular, we were interested in detecting hidden patterns of soccer behaviors during offensive game comparing home and away matches. Offensive actions of play by a top club during the first leg of the Italian National League Championship (Serie A) over the 2012-2013 season were selected and analyzed. The methodological approach was based on observational design, supported by digital recordings and computer analysis. Data was analyzed with Theme 6 beta software, which detects the temporal and sequential structure of datasets, revealing repeated patterns that may regularly or irregularly occur within a period of observation (T-patterns).

Striking differences were found when home matches and away matches were compared. The total number of pattern occurrences and the number of different T-patterns detected was greater in homematches than in away matches, whereas the number of events coded per game were similar.

Our results suggest that detecting hidden patterns could help to better understand home-advantage in terms of fundamental level of performance and it would be useful in leading to an increased depth of analysis. Theme software and T-pattern enhance research opportunities by identifying a useful tool to study the primary level of performance, making this an effective research and support instrument for soccer analysis.

ANALYSIS OF 2 VS 2 IN 6 VS 6 ORGANIZED ATTACK IN TEAM HANDBALL: - A COMPARATIVE STUDY BETWEEN MALE AND FEMALE IN HIGH LEVEL COMPETITION

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Abstract

Given the characteristics of handball as a team sport, interactive behaviors occur throughout the game and show its tactical and strategic nature with frequent cases of 2 vs 2 duel. This study aims to compare male and female high level team handball, looking for offensive patterns of behavior in offensive duels in 2 vs 2 situations, linking defensive organization with used tactical means and the result of such use. To carry out this study observational methodology was used. The sample includes all of the offensive sequences 2 vs 2 (n=802) that occurred in 6 vs 6 organized attack in thirty-two games of the final stage, sixteen from the Men's European Championship 2012 (n = 390) and sixteen from the Women's World Championship (n = 412). Descriptive statistics including absolute and relative frequencies was used to analyze data. The Chi-Square test was used to compare and verify if there were significant differences between men and women. The sequential analysis technique with lags was used to detect sequential tactical patterns associated with duels 2 vs 2. Results indicate there are no statistically significant differences in gender relative to the total number of observed actions ($\chi^2(1) = 2,321; p >.05$). The descriptive statistics shows that in both genders, the principal cooperative relations occurred between a first line player and the Pivot, being the male preferred relationship between the Left Back and the Pivot and between the Central and the Pivot, both with 24% of occurrences. On the other hand, for women the most frequently cooperative relation occurred between the Central and Pivot (29%). Regarding the tactical means in both championships, results show that "Fix/Uncheck" (26% male and 28% female), and "Fix" (25% male and 27% female) were the most used. Using sequential analysis with lags technique, results indicate the significance of the probability of:

- 1) "Cross with shot" activates "Goalkeeper Defense" and "Missing Shot", in both championships;
- 2) "Cross with Continuity" activates "Ball Possession Loss", in both championships;
- 3) "Fix/Uncheck" enables "Goal", in both championships;
- 4) "Lock" inhibits effectiveness in attack in male games;
- 5) The defensive system 3:2:1 inhibits the occurrence of the "Fix" tactical mean in mens' games and activates it in women's games.

Keywords: Observational Methodology, Team Handball, Female, Male, 2vs2

DETECTION OF T-PATTERNS AND COMPLEMENTARY LOG-LINEAR ANALYSIS

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Abstract

The detection of hidden T-patterns opens up a world of possibilities, and with this, a range of potential ways for improving the power and applications of such analyses. Of particular interest is the integration of T-pattern detection and log-linear analysis, especially in research in which a micro and macro perspective is required to study numerous levels of responses in diachronic processes (T-patterns) and cross-tabulation data (n-dimensional contingency tables). Considering both observational methodology (Anguera, 2003) and our interest in methodological aspects of all types of research (Anguera, 2005), our starting point is an interactive situation consisting of a number of sessions distributed over time. Each period of time contains large amounts of data that have been generated in successive observation sessions, which can then be selected and interpreted via T-patterns (Magnusson, 1996, 2000). However, at certain points of time (depending on the situation or the aims of the research) it may be necessary to analyse, from a macro perspective, the interrelation between levels of response or categorical variables to gain alternative or complementary insights. If we understand categorical data analysis to refer to methods used to analyse categorical response variables (which is the focus of behavioral science studies), then as Agresti (2002) notes, we can also apply models designed for multivariate responses. Log-linear models are used to model cell counts in contingency tables and expected cell frequencies as log-linear combinations of effects (model parameters) resulting from individual factors or interactions between factors. In this paper, we will combine, in a stepwise fashion, T-pattern detection and log-linear analysis to help determine the cut-off points for an optimal segmentation of behavior in several periods. Using the Theme and R software programs, we will illustrate our proposal with some practical examples.

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UNDERSTANDING FILM ART: MOMENTS OF IMPACT AND PATTERNS OF REACTIONS

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Abstract

While there may be a wide consensus that the core of fictional stories is in the generation of emotions, little is known about how this happens. The aim of our contribution is to better understand the nature of the reception processes that occur while people are watching movies. Patterns of physiological and facial reactions to a movie using Theme software were analysed. Data gathered in a study conducted to investigate cognitive and emotional reactions to the animated short film *Father and Daughter* (2000, Michael Dudok de Wit) were referenced. The narrative structure of the movie and the most important formal features were determined on the basis of dramaturgical models. In the study, heart rate and skin conductance of participants were measured, and the facial reactions of the consenting participants were videotaped. In summary, the analyses reveal the dynamic nature of movie reception. Important scenes of a movie were prepared with virtuosity, creating 'lines' or repetitions of motives combined with each other. The Filmmaker plays with the expectations and emotions of the viewers. Expectations were raised and then disappointed.