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CONTENTS

HOW TO RECONCILE MORALITY AND DIVERSITY IN GLOBALIZATOION AND MULTIDISCIPLINARY INTEGRATION

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Abstract. *Although the world has been shrinking due to rapid advancement in communication and transportation technologies, and the age of globalization and multidisciplinary integration has been clamorously announced, there is no agreement on unified morality throughout the world. We intended to provide a unified model for human morality. First, we identified three moral problems we are facing that evoke divided views on morality and pose serious conflicts with diversity. Second, we classified the previous representative thoughts on morality into two categories: the society-based and individual-based; then we pointed out limitations of the two thoughts. Third, we built a unified model of human morality, which appears to consistently explain the human reality. Fourth, we shed insight on the uniqueness of human morality in comparison with other animals. Fifth, we investigated the relationship of human morality and human language to reveal that human uniqueness resides in virtual acquaintance enabled by the human language. Lastly, we proposed how to reconcile human morality and diversity based on the mechanistic understanding of human morality.*

Keywords: *morality, diversity, language*

1. INTRODUCTION

Despite many efforts to elucidate the basic principle of human morality for many centuries, we human still do not have adequate answers; instead, we have various standpoints that are opposing to and incompatible with each other. On the other hand, because the recent rapid advancement of communication and transportation technologies has been bringing us closer to each other in various aspects, so called globalization and multidisciplinary integration are collecting attention. Globalization and multidisciplinary integrations are, however, on a shaky ground, since both activities call for us to cross borders and put our moral values to test, and if we do not have the common moral principle, crossing borders is extremely dangerous and risky. Now is the time to seek for the common moral principle of humankind.

2-1. IDENTIFICATION OF UNSOLVED MORAL QUESTIONS

To make the argument as simple and focused as possible, we restricted ourselves to treating homicide as a representative example of moral breach, since most people agree with little controversy that homicide is the evilest deed to do. Based on the observation of current chaotic moral status in the world, we identified three questions that have no clear solutions so far. The first question is: "Who decides that homicide is evil and why?" We could divide the answers roughly into two categories: 1) the authority in the society decides so to protect the social integrity; 2) each individual decides so to protect his/her own life. The second question is: "Why is homicide condoned by the society in war and capital punishment?" This question collides head-on with the first one. The third question is: "Is there no common principle of morality for the whole humankind?" If we cannot find adequate and reconciling answers to the first and second questions, the answer to the third will be negative.

2-2. STUDY OF THE PREVIOUS REPRESENTATIVE MORAL THOUGHTS

By extracting the essence of the message from the representative moral thoughts in the past, we categorized the answers for the above three questions into two contrasting basic attitudes toward morality. The first group thinks that there is ideal morality based on the social tradition including religions. We name this group the society-based thinking. The second group thinks that each individual defines his/her own morality, which cannot be directly compared with those of others. We name this group the individual-based thinking. The first thinking provides us with stable and rigid frame for morality; however, due to its resolute but exclusive nature, when two societies with different views on "ideal morality" collide, there is no restraining intolerance and violence, putting diversity in danger. In contrast, the second thinking tends to be more tolerant toward different views; however, due to its flexible but indecisive nature, it is not able to propose concrete moral rules, being unable to reconcile diversity with morality.

2-3. UNIFIED MODEL OF HUMAN MORALITY

Why there is such a big discrepancy between the society-based thinking and the individual-based thinking? We hypothesized that both ways of thinking do reflect the essence of human morality, but only partially, due to incomplete assessment. First, we reviewed the moral rules of the major religions, attempting to abstract common rules. We succeeded in extracting three common moral

rules: "Do not kill others; Do not steal from others; Do not deceive others." In short, these rules tell us: "Do not harm others." However, these rules have not been observed in war or capital punishment, creating inconsistency. To resolve this contradiction, we rethought the meaning of "others" to find out that we human usually mean by "others" not "biological human beings", but "other fellow human beings" almost automatically and unconsciously. If we supplement with "fellow" the above common rules, they become such rules that have been well observed and many efforts have been made to enforce throughout human history.

Keeping this in mind, we investigated the Ten Commandments as a representative moral code. We noticed that the first 4 rules are specific to certain societies; on the other hand, the remaining 6 rules are common to all societies by and large. These findings suggest that human moral rules intrinsically contain two distinct aspects, and that the two opposing views exaggerate only one aspect, ignoring or belittling the other.

Next, we investigated whether there is a basic principle that can unify the specific and common aspects of human morality to propose that it can be summarized into an imperative: "Be fellowish." This basic principle intrinsically contains two aspects: 1) "Do not harm other fellow human beings"; 2) "Think and behave in a manner similar to other fellow human beings." The content of the first rule is invariable and common to all societies; without this rule, no society can be formed or maintained. Thus, we call it the absolute rule. On the other hand, the content of the second rule is variable and specific to a certain society, depending on geometry and climate. Thus we call it the relative rule.

2-4. UNIQUENESS OF HUMAN MORALITY

To clarify the uniqueness of human morality, we compared human morality with that of other animals. Many researchers have tried to find unique content of human morality in vain. We hypothesized that it is not the content, but the coverage that differentiates human morality from that of other animals. The observation of gigantic society unique to human kind including state, religion, and ethnos revealed that these uniquely human societies contain those genetically remote individuals that we have never met and will never meet. This type of acquaintance is unique to humankind, not observed in other animals, providing support for our hypothesis.

2-5. RELATIONSHIP OF HUMAN MORALITY AND HUMAN LANGUAGE

Why are we able to form a society with those individuals that we have never met and will never meet? We hypothesized that we human have a surrogate for genetic closeness or direct acquaintance, a special sort of acquaintance that other animals cannot form or handle. We call it virtual acquaintance, which connects us with genetically remote individuals beyond time and space. This virtual acquaintance is enabled by human culture, which provide us with a specific world view and standards of thought and behaviour. Why can human culture go beyond time and space? The human language can transmit information beyond time and space, which is not possible through the communication methods of other animals. These characteristics of the human language enable virtual acquaintance.

3. CONCLUSION AND PROPOSAL FOR THE FUTURE

In conclusion, we have identified the unified principle of human morality: "Be fellowish," which intrinsically contains two distinct aspects: the common, absolute moral rule and the specific, relative rule. When we look into key issues on morality in globalization, xenophobia and ethnocentrism is the most serious. The typical assertion of xenophobia is: "Our culture and language is unique and superior to others," regarding being different from their standards as being inferior and evil. This can be interpreted as coercion of the specific, relative moral rule. To conquer xenophobia and ethnocentrism, it is essential to recognize the two distinct elements of human morality (the common, absolute rule vs. the specific, relative rule); if we observe the first rule, we can form a society with diversity. At the same time, we should never coerce the second rule. Development of the method to implement these solutions is now underway.

4. REFERENCES

[1. INTRODUCTION]
Stephen M. Cahn & Peter Markie, 'Ethics', Oxford University Press, New York, 1998
Gordon Marshal ed., 'A Dictionary of Sociology', Oxford University Press, New York, 1994
Alasdair MacIntyre, 'After Virtue', University of Notre Dame Press, Notre Dame, 1984
[2-1. IDENTIFICATION OF UNSOLVED MORAL QUESTIONS]
John Keegan, 'A History of Warfare', Vintage Books, New York, 1993
Daniel G. Bates & Elliot M. Flatkin, 'Cultural Anthropology', Allyn and Bacon, Boston, 1999
Marvin Harris, 'Culture, People, Nature', Longman, New York, 1997
[2-2. STUDY OF THE PREVIOUS REPRESENTATIVE MORAL THOUGHTS]
Karen Armstrong, 'A History of God', Ballantine Books, New York, 1993
Alasdair MacIntyre, 'A Short History of Ethics', University of Notre Dame Press, Notre Dame, 1998
[2-3. UNIFIED MODEL OF HUMAN MORALITY]
Matt Ridley, 'The Origins of Virtue', Penguin Books, New York, 1996
Richard D. Alexander, 'The Biology of Moral Systems', Aldine de Gruyter, 1987
Edward O. Wilson, 'On Human Nature', Harvard University Press, Cambridge, 1978
[2-4. UNIQUENESS OF HUMAN MORALITY]
Michael Allaby ed., 'The Concise Oxford Dictionary of Zoology', Oxford University Press, New York, 1991

Edward O. Wilson, 'Sociobiology', Harvard University Press, Cambridge, 1975

[2-5. RELATIONSHIP OF HUMAN MORALITY AND HUMAN LANGUAGE]

Bernard Comrie, Stephen Matthews, Maria Polinsky eds., 'The Atlas of Language', Facts on File, New York, 1996

David Crystal, 'The Cambridge Encyclopedia of Language', Cambridge University Press, New York, 1997

Marc D. Hauser, 'The Evolution of Communication', MIT Press, Cambridge, 1997

STUDENT'S ATTITUDES TO GAMIFICATION IN THE LEARNING PROCESS

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Abstract. *This paper examines gamification, as a multidisciplinary application of game design principles in other contexts. Advent of gamification is especially visible since 2012, and it incorporates several disciplines like psychology, management, game design and education. Our scope of interest is limited to Eastern Europe, where the questionnaire was distributed to assess attitudes and behavior regarding gamification in learning. Main hypothesis of the paper are: Students are familiar with gamification in the learning process; students recognize positive sides and mitigating circumstances which are being delivered with gamification usage; male and female students perceive no difference regarding attitudes and intended behaviors concerning gamification in the learning process. All hypothesis are confirmed using descriptive statistical analysis and t-test.*

Keywords: *Gamification, Learning, Student attitudes, Video games, Technology Acceptance Model*

1. INTRODUCTION

This paper will present basic outline of gamification and elaborate its current usage in the field of learning, with focus on higher education. It will show examples of gamified applications in the field, and empirical research on current attitudes of students regarding gamification.

Gamification is defined as using of games or game elements in the context of problems that have nothing to do with games, but they succeed to motivate users do solve the problems and they increase the level of user influence on predefined problem. By its very definition, we see the multidisciplinary nature of the gamification. Applications of gamification are in business, education and social

- 1979 (''MUD1'') – is created by Roy Trubshaw at Essex University. It was the first multi-user virtual world game.
- 1983. (''Holliday Inn'') - launches the first hotel loyalty program.
- 1996 (Richard Bartle) – publishes ''Who Plays MUAs'' which divides video game players in four unique types.
- 2002 (reversal year) – serious gaming initiative forges a link between electronic gaming industry and training, healthcare, education and public policy.
- 2003 (NikPeling) – coins the term *gamification*.
- 2007 (''Bunchball'') – creates ''Dunder Mifflin Infinity'' for the TV show ''The Office''. It receives over 8 milionpageviews in six weeks.

action, and famous corporate examples of gamification are Microsoft, Nike, SAP, Siemens, Foursquare, Cisco, American Express, Deloitte, Samsung, Dell. Gamification is different from direct usage of video games in other context, as "serious game" describes the design of *full-fledged* games for non-entertainment purposes, "gamified" applicationsmerely incorporate *elements of* games (Deterding et al, 2011).

Main game elements are (Gray, Brown &Macanufo, 2010):

1. Goal of the game - shows us what is expected for participants to achieve.
2. Game area - is the area out of the real world in which participants will play a game.
3. Game borders - are referring to any kind of limits, for example time limits, space limits etc.
4. Game rules - give an explanation of how participants will play a game.
5. Objects - help us to keep up with the game in progress and results during the game.

Deterding et al (2012) have similar view, sorted by level of abstraction, from lowest to the highest:Game interface design patterns (badges, leaderboards, levels), Game design patterns and mechanics (limited resources, turns, time constraint), Game design principles and heuristics (enduring play, clear goals, variety of game styles), Game models (challenge, fantasy, curiosity), Game design methods (play-testing, play-centric design, value conscious game design).

Generally, gamification development has been in the eyes of the researches for years. It is important to mention that history of this concept is not young and that the concept had its marks even in nineteenth century. Next part of the paper will notify some of the most important moments of gamification history:

- 2010 (''Gamification Co.'') – holds the firs gamification Summit in San Francisco, California.
- 2012 (Kevin Verbah) – 45,000 people enrol in Professor Kevin Werbach's online gamification course through Coursera.
- 2014 (''M2 Research'') – predicts that gamification will be a 2.8 billion dollar industry by 2016.

Gamification in education has been applied with success (Sheldon, 2012; Kapp 2013), but in Serbia there was not institutionalized cases of this multidisciplinary practice. There is some research in Serbia covering it with academic field (Čudanov et al. 2014; Parlic et al. 2015). This research is aimed at one of main preconditions for the acceptance, students' attitudes and behaviours.

2. METHODS

Research of gamification usage and recognition by students (University of Belgrade)was conducted using primary data which were collected by questionaire in February 2016. 133 students gave their answers on more than 20 questions via online poll.The main instrument of research was online questionaire created via Google platform – Google Form. Questionaire was constructed on Serbian language and categorised questions in four different groups:

1. Demografic characteristics of examinee
2. Examination of gamification awareness
3. Examination of attitudes on gamification
4. Examination of gamification usage

Questions were grouped in certian entities and gathered answers were analysed. In addition, questions had 1-7 (one to seven) defined values which were given on Likert scale so that collected answers could give us more concise and clearer conclusions. They were also grouped using TAM model (Technology Acceptance Model) which gave an answer on student's acceptance of gamification in the learning process. Furthermore, it gave us a conclusion wheather the level of acceptance is high or low.

Main hypothesis which were set before distribution of questionaire to examinees are:

> HYPOTHESIS 1: Students are familiar with gamification in the learning process
> HYPOTHESIS 2: Students recognize positive sides and mitigating circumstances which are being delivered with gamification usage
> HYPOTHESIS 3: Male and female students perceive no difference regarding attitudes and intended behaviours concerning gamification in the learning process

To check our hypothesis we have used t-test (Krishnaswamy, Sivakumar & Mathirajan, 2004) since QQ plots have indicated normality in the distribution of our variables, having in mind sample size and Marczyk, DeMatteo and Festinger (2005) consider it relatively robust in terms of sensitivity to normality. Conclusions were provided using inductive and deductive reasoning, following guidelines appropriate for research in our context (Saunders, Lewis & Thornhill 2011: 501). Generalization of our results is limited to the context of eastern Europe, but has a relative wide sample of students of all specializations, average grade and state/private universities. Below is given analysis of the demographic traits of our sample.

Examination included 133 examinees of which 63 male and 70 female ones. Conclusio is that questionaire was succesful in the sense of gathering both sides of a person's character and therefore width of research. So, approximatelly equall number of both sexes is good result.

Sum of absolut differences between reverse-control questions and their appropriate - referable questions is thoroughly examined. This is also one of the indicators that can show us how thoughtfull questionaire was fiiled out and what was the level of examinees' concentration.

Our research goal was minimum value of sum of absolut differences.

There are 4 defined control questions and 4 reverse control questions which have their appropriate - referable questions. The smallest difference between one reverse-control question and its appropriate - referrable question can be 0 and biggest can be 798 ((7-1)*133). Individually, differences between reverse control and their appropriate – referable questions are 80, 179, 34 and 14,5 respectively. Their sum is 307,5. Cumulativ of maximum differences can be 3192. So, mistake (variance) during questionaire fill out is defined as ratio – 307,5/3192. That means that thoutghfulness ratio equals 0,903 (90,3%). In the end, we can say that our poll was successful since this ratio value is above 75%.

Next aspect of research is connected with demographic feature concerning examinees. Majority of answers was gathered for students that are currently in their fourth and final year of studies, master studies and people that are fresh post-master graduates. That information indicates that attention of examiner was directed to the people and colleagues of the same age as him – around 24 years of age.

The last demografic aspect of examination was questioning type of education concerning examinees. Approximately, the huge number of examinees came from Faculty of Organisational Sciences (47,3%) while the rest of them came from variety of other faculties (Faculty of Philosophy, Faculty of Medicine, Pharmaceutical Faculty, etc).

3.RESULTS
3.1 Hypothesis 1

After examination of gamification awareness, it was established that answers were pretty much homogeneous speaking about students from Faculty of Organisational Sciences (any module). So, there is not any rule that defines awarenes of any group of studentst towards gamification. For instance, average awareness indexes of students of IT (Faculty of Organisational Sciences' module 1) and students of management (Faculty of Organisational Sciences' module 2) are almost identical (IT – 4,529/10, Management – 4,902/10). Apart from that, AAI of students that are not from Faculty of Organisational Sciences is 2,951 and that can lead us to conclusion tha students which are not from this faculty have less awareness towards phenomena. After all, it can be said that examinees are not so much familiar with this notion althogh they are in everyday touch with it unconsciously. AAI of all examinees is 3,887.

For total sample one sample t-test has been performed to check the hypothesis if mean of the population for the vaiable „Do you have basic knowledge of the gamification" is larger than 3. Results are given in the table below:

Table 1 One-Sample Test, familiarity with gamification

	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Are you familiar with the concept of gamification?	3,479	133	,001	,8955	,386	1,405

Important to mention is that there were a few more aspects of this research. Those were the questions for examinees concerning name appointment of known gamification examples and appontment of some faculty subjects that have been using gamification. Just a few of them had an answer on these questions. Out of those few, some of them did not even recognise the true meaning of the questions. Therefore, some of the recognized correct answer were: Nike, Runtastic, DuoLingo, Frikom video game, Foursquare Badges, supermarket coupons, Eko Smile card, etc. Speaking about recognised subjects (Faculty of Organisational Sciences): Theory of Decision Making, Game Theory, Business Inteligence and Marketing Multimedia.

One another aspect of examination was frequency of game playing within people. Together with this data, it was easy to come up with a general goal of this research – global desire for structural change in educational system. Even some lighter changes could be at stake, for example gamification in the learning process. Examined frequency of game usage gave an expected answer – majority of people said that they play games sometimes. As a conclusion, implementation of gamified systems into the educational process would not be unknown or surprising issue.

One of the most important features of this research has to do with type of games which are being played within the examinees. Half of all the answers led us to traditional way of playing – Board games (Monopoly, Cluedo, Risiko, Draw Out, Pictionaire). Right after this one there is a group of Simulation and arcade games (Pro Evolution Soccer, Fifa, Ultimate Fight), puzzles, MMORPG's, etc. The conclusion is that students find their entertainment which do not go far away of simulations and tradition which lies in an integration and interaction with another players. So, most of our examinees were socializers, according to Richard Bartle.

Richard Bartle gave a categorisation of player types through his taxonomy over MUD (Multy-User Dungeon). The four things people typically enjoyed personally about MUDs were:

1. Achievement within the game context. Players give themselves game-related goals, and vigorously set out to achieve them – achievers.
2. Exploration of the game. Players try to find out as much as they can about the virtual world – explorers.
3. Socializing with the others. Players use the game's communicative facilities and apply the role-playing that these engender – socializers.

4. Imposition upon others. Players use the tool provided by the game to cause distress to other players – killers.
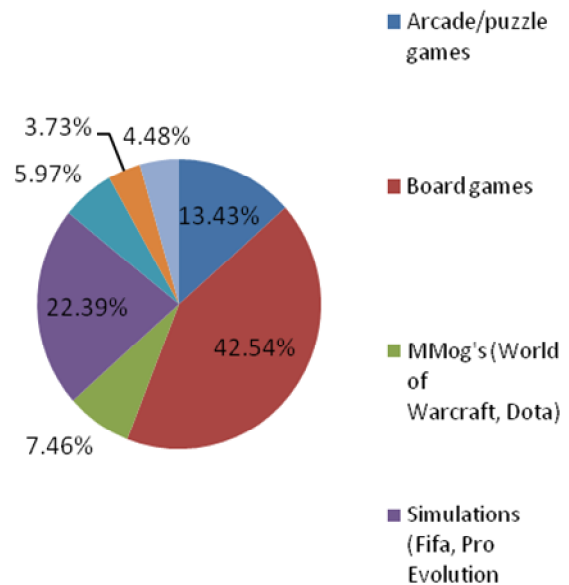
Figure 1. Type of games which are being played

3.2 Hypothesis 2

Students' attitudes were examined and valued on Likert scale, with possibilities of values from one to seven (1-7). Base for this research is TAM (Technology Acceptance Model) which helped us to divide questionaire elements into groups of questions: Perceived usefulness of gamification, Perceived ease of use of gamification, Attitude toward using gamification, Actual use of gamification and Behavioral intention to use gamification. As a unique group for testing, we defined control group of questions.

Next figure shows average values of items according to Technology Acceptance Model (Venkatesh and Davis, 2000), which was used in the learning context already (Mijatovic et al 2013; Horvat et al 2015).

Figure 2. Average item values

3.2 Hypothesis 3

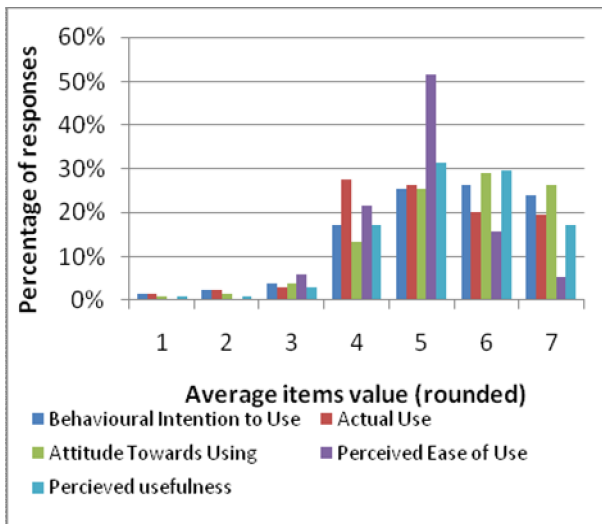Next part of our analysis is related to the hypothesis that there is no statistically significant difference in observed parameters according to gender. Since our variables are normally distributed, as it was checked using QQ diagrams, we have used t-test to check for mean differences between two groups. Levene's test of equality pointed us toward assuming equal variances, since all significance values for F-statistics were much higher than 0,05, so only the equal variances assumed output is presented. Results are given in the tables below:

Table 2 Descriptive statistics analysis according to gender

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Perceived usefulness of gamification	Male	64	5,226563	1,0962768	,1370346
	Female	70	5,203571	1,1627467	,1389748
Perceived ease of use of gamification	Male	64	5,046875	,9274706	,1159338
	Female	70	4,790476	,8168346	,0976304
Attitude toward using gamification	Male	64	5,637500	1,2083703	,1510463
	Female	70	5,417143	1,2346415	,1475679
Attitude towards taking gamification course	Male	64	5,328125	1,1539247	,1442406
	Female	70	4,928571	1,4378066	,1718508
Behavioral intention for using gamification	Male	64	5,394531	1,2831360	,1603920
	Female	70	5,121429	1,4005323	,1673956

Table 3 Independent samples test according to gender

	t-test for Equality of Means						
	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Conf. Interval of the Diff.	
						Lower	Upper
Perceived usefulness of gamification	,117	132	,907	,03	,20	-,3641058	,4100879
Perceived ease of use of gamification	1,701	132	,091	,26	,15	-,0417101	,5545078
Attitude toward using gamification	1,043	132	,299	,22	,21	-,1977564	,6384707
Attitude towards taking gamification course	1,764	132	,080	,40	,23	-,0486108	,8477179
Behavioral intention for using gamification	1,173	132	,243	,27	,23	-,1872976	,7335029

4. DISCUSSION

Our research shows there is general positive student perception toward attitudes and behaviours related to gamification. Results are limited to Eastern Europe, which is not perceived as the vanguard of progressive application of new management practices, but in this case results are encouraging. Students show positive attitude toward gamification, and have positive expectations regarding benefits gamification could bring to the learning process. Our research shows that, contrary to common expectation, there are no significant differences in those attitudes between male and female students. Results are illustrated by example of successful gamification in learning.

Example shown is elaborated by Huang and Soman (2013), regarding gamification in healthcare education, which has shown good results on population not limited only to students. Gamification has direct business use n customer engagement, motivation and performance improvement. But education is also appropriate application, where Huang and Soman show how customers can be educated before and after purchase. Healthcare University was developed by Capital BlueCross with the objective of using gamification to teach consumers the

basics of healthcare and how to make value-based healthcare decisions (Huang &Soman, 2013). Healthcare University aims to simplify the process and encourage these consumers to learn and take action. The first 4 topics to be learned are structured as:

- Healthcare reform,
- Marketplace Basics,
- Understanding Subsidies,
- Shopping in the Marketplace.

Further advancement of open online courses discussing gamification is another example. As a separate course or part of another course gamification exists on Coursera, Udacity and EdX as massive MOOC platforms. Coursera „Gamification" course has initially enrolled 63.000 students (Martin, 2012) and has repeated almos in every semester since 2012 .

5. CONCLUSIONS

Our research gave us an insight into the concept of gamification and general knowledge students share on it. Using t-test, descriptive statistics, inductive and deductive reasoning, we have presented evidence that students are introduced with the topic. Also, we have provided insight into examples of concrete subjects including gamification, and so gaming habits of students –their game of choice and frequency of computer games playing. Further, we have shown that attitudes towards gamification are positive in general, covering: Perceived usefulness, Perceived ease of use, Attitude towards using, Actual use and Behavioral intention to use, variables originating from TAM model. Our last hypothesis that there are no significant differences toward gamification between the male and female gender is also confirmed by statistical results.

Limitations and further research is at first aimed at widening the sample and getting better hold of random, representative sample for wider population of students. In those terms, repetition of our research in different countries is encouraged, and we will gladly share methods and tools with other authors. Further, TAM can also be checked in this context for the acceptance of gamification technologies once the sample is large enough to support SEM analysis.

REFERENCES

[1] Bartle, R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs.*Journal of MUD research*, *1*(1), 19.

[2] Crumlish, C., & Malone, E. (2009). *Designing social interfaces: Principles, patterns, and practices for improving the user experience.* " O'Reilly Media, Inc."

[3] Čudanov, M., Parlić, D., &Sofronijević, A. (2014). Proposed framework for gamifying information retrieval: case of DART-European research theses portal. In Proceedings of the Second International Conference on Technological Ecosystems for Enhancing Multiculturality (pp. 185-190). ACM. Available online: http://dl.acm.org/citation.cfm?id=2669898&dl=ACM &coll=DL

[4] Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011, September). From game design elements to gamefulness: defining gamification. In Proceedings of the 15th international academic MindTrek conference: Envisioning future media environments (pp. 9-15). ACM.

[5] Gray, D., Brown, S., &Macanufo, J. (2010). *Gamestorming, A Playbook for Innovators, Rulebreakers and Changemakers*. Sebastopol, California: O'Reilly.

[6] Horvat, A., Dobrota, M., Krsmanovic, M., &Cudanov, M. (2015). Student perception of Moodle learning management system: a satisfaction and significance analysis. Interactive Learning Environments, 23(4), 515-527.

[7] Huang, W. H. Y., &Soman, D. (2013). *Gamification of Education*. Research Report Series: Behavioural Economics in Action.

[8] Huotari, K., &Hamari, J. (2012, October). Defining gamification: a service marketing perspective. In *Proceeding of the 16th International Academic MindTrek Conference* (pp. 17-22). ACM.

[9] Joel, L. A. (2013). *Advanced Practice Nursing: Essentials of Role Development*. FA Davis.

[10] Kapp, K. M. (2012). *The Gamification of learning and instruction: game-based methods and strategies for training and education*. New York, USA: John Wiley & Sons

[11] Krishnaswamy, K. N., Sivakumar, A. I., &Mathirajan, M. (2004). Management Research Methodology: Integration of Principles. Methods and Techniques, New Delhi, India: Dorling Kindersley Ltd.

[12] Marczyk, G., DeMatteo, D., &Festinger, D. (2005). Essentials of research design and methodology. New Jersey, USA: John Wiley & Sons.

[13] Martin, N. (2012). MOOCs are massive. Training & Development, 39(5), 32.

[14] Meister, J. C. (2013). How Deloitte made learning a game. *Harvard Business Review, 2*.Mijatovic, Ivana, MladenCudanov, Sandra Jednak, and Djordje M. Kadijevich. "How the usage of learning management systems influences student achievement." Teaching in Higher Education 18, no. 5 (2013): 506-517.

[15] Parlic, D., Sofronijevic, A., &Cudanov, M. (2015). Gamification and librarianship: a new DART-Europe ready to roll. In Eden, B.L (Ed.) Gamification and Librarianship. Enhancing Teaching and Learning in the 21st-Century Academic Library: Successful Innovations That Make a Difference, 2, 135.Maryland, USA: Rowman& Littlefield ISBN: 978-1442247055 https://rowman.com/ISBN/9781442247031/Enhancing-Teaching-and-Learning-in-the-21st-Century-Academic-Library-Successful-Innovations-That-Make-a-Difference#

[16] Reeves, B., & Read, J. L. (2013). *Total engagement: How games and virtual worlds are changing the way people work and businesses compete*. Harvard Business Press.

[17] Saunders, M., Lewis, P., &Thornhill, A. (2011). Research methods for business students, 5th edition. Harlow, UK: Pearson Education.

[18] Sheldon, L (2012) *Multiplayer Clasroom*. Boston, USA: Centage Learning

[19] Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, *46*(2), 186-204.

[20] Zichermann, G., & Cunningham, C. (2011). *Gamification by design: Implementing game mechanics in web and mobile apps*. " O'Reilly Media, Inc.".

A QUEST FOR DEVELOPMENT METROLOGY

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Abstract. *This paper explores development metrology in the framework of social field theory (SFT). Two intensive properties of the SFT, "economic temperature" and "economic entropy," are candidate variables to measure magnitude and direction of development. We show, by comparing the United Nations Development Programme (UNDP)'s Human Development Index (HDI) with the economic temperature, that the HDI needs to be augmented with additional variables to account for harmony between a society and an individual. The paper also suggests a number of relevant variables that might help advance the analytical study of social science disciplines.*

Keywords:*development metrology, Human Development Index, economic temperature, economic entropy*

INTRODUCTION

Many scholars and institutions have attempted to answer the following overarching questions: How do we measure development? What does it mean for a country or a society to be considered developed?

Conventional approaches used to classify societies based on their Gross National Income (GNI) per capita or Gini coefficient fail to answer these questions, although these measures provide some insights into the comparative development of different societies. Societies that are comparable with respect to those measures may significantly differ from each other in regard to other indices of overall development, such as the Human Development Index (HDI) or the Energy Development Index (EDI). In a report to the United States Congress in 1934, Simon Kuznets, the creator of the concept of GDP, admitted that the welfare of a nation can scarcely be informed from a measure of national income. A consensus has yet to be built on global quantitative measurements of development. Furthermore, what is missing is the "development metrology": a scientific foundation and framework for measuring overall development.

The "social field theory" (SFT)bolsters the "capability approach" developed by the Nobel laureate Amartya Sen [1] and Martha Nussbaum [2] that inspired the United Nations Development Programme's composite HDI. The theory quantifies capabilities as the potential energy of an individual [3]in the "Social Field" – one of the means of production. The HDI is missing the underlying science foundation[4], which this development metrology is expected to complement.

Science and technology advancements have long made contributions to human development. Recently, multilateral organizations have focused on behavioral science in their models for understanding development. Gradually, science has been sought out and is making an impact on policy formulation, including mainstream development policies. According to the World Development Report 2015 [5] development economics and policy are due for a redesign following new insights in behavioral economics. This is a favorable shift in economic ideas that is in line with development metrology. The conventional piecemeal approach of addressing social issues with an economic lens has resulted in many divisions among economics scholars. The economics of development can only be revamped through a foundation based on science that economists have been attempting to implement since the time of William Jevons (1835–1882), who introduced mathematical methods in economics.

The SFT serves as the missing foundation in our understanding of development, as evidenced by the many social dynamics it has helped explain[3, 6]. The SFT preserves an understanding of the uniqueness of an individual at the same time that it captures the general patterns of a society. The theory is in line with the ideas of Kurt Lewin[7]: "to understand or to predict behavior, the person and his environment have to be considered as one constellation of interdependent factors."

Not all aspects of a society may be measured precisely. Albeit, this does not imply we should not aspire to it. Our society reveres the use of numbers as they relate to qualitative perception. Physicians in western society have even championed numbers to quantify pain (the one-to-ten scale of pain). Most importantly, assigning a number value to a parameter of interest provides us an opportunity to

measure and control it. After all, it's well understood that we achieve what we measure. Furthermore, the efficacy of interventions in development – local or international – may be measured by the metrics provided by the SFT. Assigning a number to the development of a society can elicit a better strategy and standardization for interventions by governments and multilateral organizations mobilizing Official Development Assistance (ODA) or other forms of foreign aid.

Identifying the most useful variables of a research question is paramount to discovering the underlying relationship and causality. Exact sciences aspire to define the most important variables and to measure them. It helps if underlying relationships, if any, are uncovered among the variables, which later can be upgraded to laws through independent scrutiny by the scientific community. The evolution of natural science can be credited to years and years of systematic observation and persistent assembling of data.

The SFT developed at the University of Massachusetts promises to serve as a framework for the quantitative measurement that is missing in the current scholarship. The economic temperature defines magnitude, whereas the economic entropy defines a direction of development. These two intensive properties of SFT are the function of social strength (S), individual strength (I) and the trust vector (Γ). These terms – not well identified in social science, and currently expressed in their natural units – need to be updated using their proper, more complex system of units. This theory looks at human psychology in a pragmatic way – with all these components intermingling – and tries to quantify the results of the interactions, as well as is scientifically possible.

This paper aims to underpin the UNDP's HDI. In Section 2, we review the SFT and present a concordance table to facilitate connection and exchange of knowledge between natural and social sciences. Section 3 presents economic activities as an analogue mechanism of energy conversion process. Section 4 presents a capital-capabilities-based model of development process. We elaborate on development metrology in Sections 5 through 7. Finally, we conclude in Section 8, with recommendations that might bolster the UNDP's composite HDI.

THE SOCIAL FIELD THEORY (SFT): A REVIEW

SFT is an eclectic analytical construct on the foundation of classical field theories. SFT originated from positivism, a philosophy of science that suggests that society, like the physical world, operates according to some general law.

According to the SFT, the Social Binding force (in natural units) at social distance r is:

$$F = \frac{S\,I}{r^2} \qquad (1)$$

where S and I are social strength and individual strength, respectively. According to Wright [8], social distance is the relation of social entities to others measuring the degree of their contact or isolation. In equation (1), r represents social distance between a society and an individual. A reciprocal of social distance may be defined as trust vector (Γ), which can be a measure of degree of social cohesion or well-being. It can be measured utilizing Self-Anchoring Striving Scale [9], known as Cantril's Ladder popular in public opinion research.

This theory draws upon how similar interaction takes place in many other fields (such as gravitation, electrostatic, and magnetic fields). In the "Social Field," potential corresponding to r is equal to

$$V = -\frac{S}{r} \qquad (2)$$

and, the potential energy

$$PE = -\frac{S\,I}{r}. \qquad (3)$$

In the extant literature, the potential V is called the "economic temperature." This is a phrase conceived by Emanuele Sella in 1915 with an aim to supersede challenge associated with *value* measurement[10]in economics.

The potential energy, PE, of an individual is equivalent to the capabilities following the nomenclature of the "capability approach". Capabilities à la Amartya Sen → 0 as r →∞.

A concordance table of terminology between thermodynamics and economics was developed based on a seminal work by Irving Fisher [11] in his Yale University PhD dissertation. Table 1 incorporates knowledge from the most profound discoveries of the twentieth century – namely quantum mechanics, relativity theory and the capability approach.

Table 1. CONCORDANCE TABLE

Thermodynamics		Economics	
CV	control volume	Ω	a political region (society)
Q	heat	Q	aggregate value, in absolute sense
T	temperature	S/r	economic temperature
ds	entropy change	dSI/S	economic entropy change
W	work	W	input for an economic process
KE	kinetic energy	C_1	capital, SI/2r
PE	potential energy	C_2	capabilities (knowledge, skill, etc.), $-$ SI /r
E	energy (ke + pe)	A	asset (capital + capabilities), $A = C_1 + C_2$
m	mass	$\mathfrak{I}$	social inertia
v	velocity[a]	G	growth/development, dA/dt
a	acceleration	dG/dt	rate of change of growth, d^2A/dt^2

[a]In the term analogous with classical mechanics, the velocity corresponds to the rate of change of the social distance, dr/dt. In the Social Field $F = \frac{SI}{r^2}$, and the asset A $= -\frac{1}{2}\frac{SI}{r}$. Combining, we can write: $F = -\frac{2Ar}{r^2} = -\frac{2A}{r} = -2A\Gamma$. For a given time, if F is assumed constant, the product of the asset and the trust vector is constant. This implies that dA/Adt $= -$ dr/rdt. Hence, the growth rate, dA/dt, can function as a proxy of velocity in classical mechanics.

Two postulates of the Social Field are as follows:

HP01:   Social Field is a quasi-conservative field, defined as a field for which total energy is a monotonic function of time.

HP02:   Poverty levels are quantized in similar notion as in established models of an atom, Bohr's theory [12] of the hydrogen atom and Schrödinger's equation.

ECONOMIC PROCESS AS AN ENERGY CONVERSION PROCESS

An economic process in a society may be analyzed by using the energy conservation analysis of thermodynamics, which is best known as the First Law of Thermodynamics. Following concordance Table 1, the equation of the First Law of Thermodynamics

$$dE = dQ - dW \tag{4}$$

translates to economics as

$$\Delta Asset = \Delta Value \ - \ \Delta Work; \tag{5}$$

where symbol Δ represents a change of the variable.

Let Q_1 be the value of input and Q_2 be the output of an economic process that demands work input dW. This process may be compared to the refrigeration/heat pump cycle in thermodynamics; a caveat is that those cycles do not retain internal energy, while an economic cycle must retain someinternal energy in order to perpetuate its motion. Figure 1 graphically interprets the terms of equation (5).
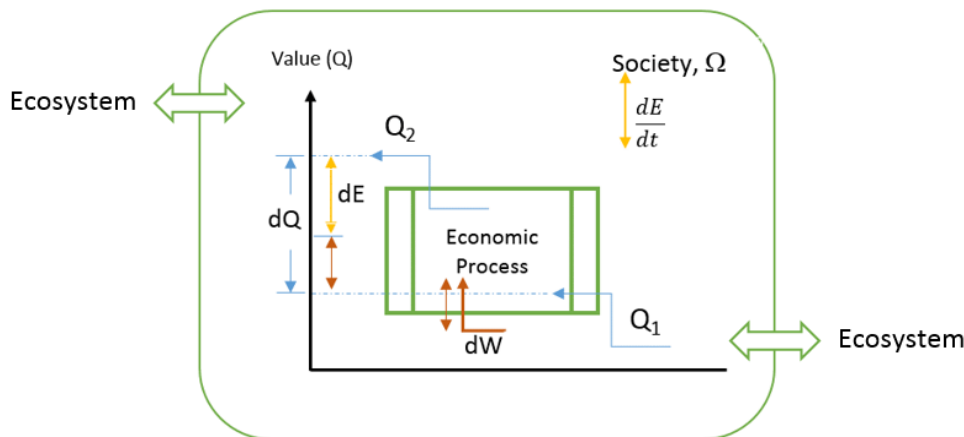

Figure 1. Economic process and the first law of thermodynamics

In terms of value addition as a result of an economic process, we can define coefficient of production (COP) as a ratio of values of output and input. Therefore,

$$COP = \frac{Q_2}{Q_1 + dW} = \frac{Value\,of\,Output}{Value\,of\,Input + Work\,Expended} = \frac{Output}{Sum\,of\,Inputs}$$

(6)

It is critical for an economic process to have an operating margin to pay its fixed costs, hence COP > 1 in general. The numerator of equation (6) compares selling prices to the denominator of the cost prices of a product. The gross value addition $dQ = Q_2 - Q_1$. The net value addition is $dE = dQ - dW = Q_2 - (Q_1 + dW)$, sometimes also known as "gross margin."This value or surplus belongs to the drivers of production – capital and capabilities – that are assets of the society Ω in which the economic process (production or consumption) takes place. A rational distribution of this surplus is one of the greatest challenges of political economy today.

WHAT IS DEVELOPMENT?

Development is a general term utilized in various senses in many disciplines. For a society, "development" may be defined as a process by which the society and its members gain strengths and mutual trust that they value for upward social mobility. In other words, development is a symbiotic evolution process of capital and capabilities of members of a society.

Figure 2 presents a model of development [6] where two social assets – the capital (C_1) and the capabilities (C_2) – interact to support the upward mobility of a society. The x-axis represents the time and the ordinate represents the social asset, the driver of production that a given social class exercises. Line AB represents social hierarchy and its inclination (θ) with the x-axis representing the inequality prevalent in the society. Po_1 is the poverty level in the society at time t_1. An interplay between the capital and the capabilities can produce a upward force F_{NET} that can induce upward social mobility of the society, represented by line AB.
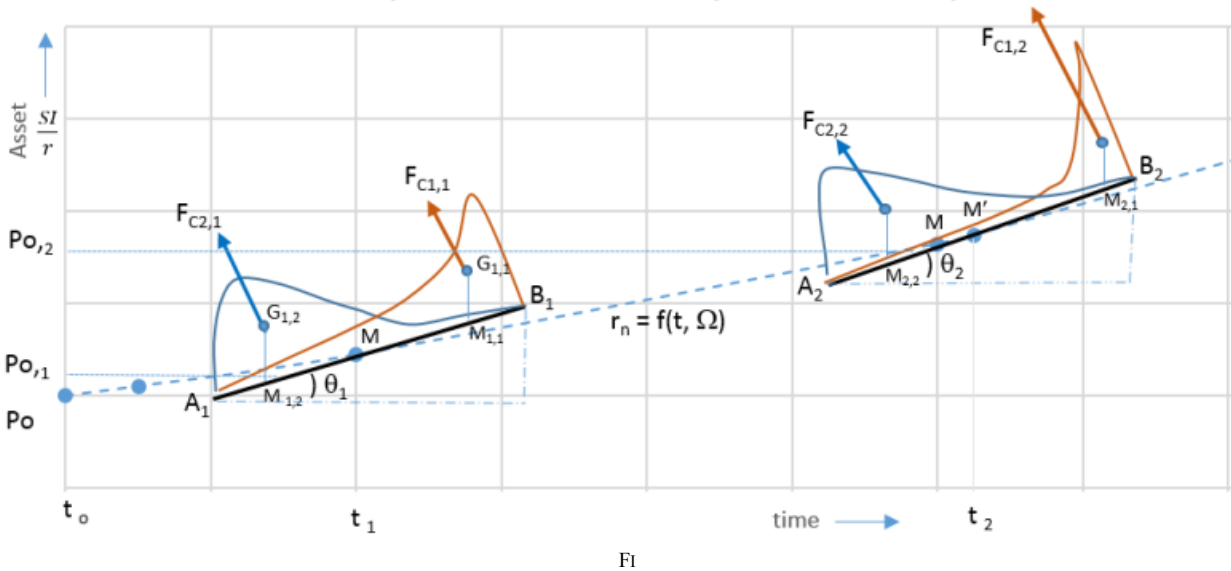

Figure 2. Dynamics of growth – capital and capabilities

Suppose F(y) represents capital distribution function in a society, such that dF(y) is the proportion of population (or economic units) that own capital y. In terms of probability density function f(y), we can write: $dF(y) = \int_{Po}^{\infty} f(y)\,dy$. Consider $c_m = max\,(SI/r)$, and Po the absolute poverty in Ω at given time.

Forces of Capitalism F_{C1} = Area under the curve F(y) and the social hierarchy line AB

$$= \int_{Po}^{c_m} F(y)\,dy.$$

This force F_{C1} acts at centroid G_1 of capital the distribution curve. In a similar way, we can compute F_{C2} and centroid G_2 given a capabilities distribution curve. At time t_1, M is the social fulcrum at which the social inertia,$\Im$, of the society may be assumed to be concentrated.

The capital-capabilities-based model of development in the SFT framework above highlights two sources of assets in the society: kinetic and potential. Capital is a kinetic asset, whereas the capabilities are a latent asset, in some cases not yet realized as contributing to the development of the society. These social assets are the means of production in today'sknowledge-based economy. In order for a society to be termed "developed," realization of both of the means of production is very important.

The first Human Development Report (HDR) was launched by the UNDP in 1990 under the leadership of MahbubulHaq. The HDR aimed to shift the focus of development economics from national income accounting to people-centered policies [13], sometimes also known as the Human Development Paradigm [14]. A HDR includes HDI of countries for a given year. The HDI is a summary measure of average achievement in key dimensions of human development. The methodology underlying synthesis of the HDI is probably one of the most debated

topics in economic science. Selim Jahan [15] and Elizabeth Stanton [16] have documented a brief account of the evolution of the HDI. Martin Ravallion [4] suggested that future progress in devising useful new composite indices of development will require that theory catches up with measurement practice. The HDI, as it is now, does not carry information about the future level of development[17]or direction of development. Many scholars – including Ravallion [18] – have highlighted its weakness, but only a few studies[19, 20] have suggested ways to improve it. In response, the metrology is evolving but at a snail's pace. The organization unit of the UNDP responsible for the HDR, the Human Development Report Office (HDRO), has been very responsive to the critique and has gradually updated underlying methodology. The 2014 HDR incorporated geometric methods of aggregation of its three underlying indices related to income, health and education.

The SFT provides a scientific foundation for the HDI and some ways to improve it. The metrology based on the theory integrates, at the least, fundamental dimensions such as economic growth, inequality and poverty dynamics. A development must encompass both the capital and the capabilities. Economic growth has largely been toward capital development. Hence economic growth cannot be a measure of development itself although it is a very important part of the development process. Based on the model of development presented above (Figure 2), the rate of development

$$\frac{d\mathcal{H}}{dt} = \frac{A(M @ t_2) - A(M @ t_1)}{t_2 - t_1} \qquad (7)$$

where $A(M @ t)$ represents the social asset, a sum of capital and capabilities measured at the social fulcrum M at time t.

DEVELOPMENT METROLOGY

Following the definition of development in Section 4, the Hamiltonian $\mathcal{H}$ can be written in the Social Field as

$$\mathcal{H} = \mathcal{H} (S, I, r, t). \qquad (8)$$

The Hamiltonian $\mathcal{H}$ corresponds to the total energy of the Social Field under analysis. Equation (8) can written in total derivative form as

$$\frac{d\mathcal{H}}{dt} = \frac{\partial \mathcal{H}}{\partial t} + \frac{\partial \mathcal{H}}{\partial S}\frac{dS}{dt} + \frac{\partial \mathcal{H}}{\partial I}\frac{dI}{dt} + \frac{\partial \mathcal{H}}{\partial r}\frac{dr}{dt}. \qquad (9)$$

The net force in an open society could be the sum of the endogenous (F_{en}) and exogenous (F_{ex}) forces that compares the body forces and surface forces in mechanics. Hence, following Newton's second law one can write,

$$F_{NET} = Social Inertia \times rate of change of development$$

or $$F_{en} + F_{ex} = \Im \text{ x } \frac{d^2\mathcal{H}}{dt^2}.$$

Alternatively, recalling $\mathcal{H} = \mathcal{H}$ (C_1, C_2, t) and $F_{en} = \frac{S I}{r^2}$, we get

$$\frac{d}{dt}\left(\frac{\partial \mathcal{H}}{\partial t} + \frac{\partial \mathcal{H}}{\partial C_1}\frac{dC_1}{dt} + \frac{\partial \mathcal{H}}{\partial C_2}\frac{dC_2}{dt}\right) = \frac{1}{\Im}(F_{en} + F_{ex}). \qquad (10)$$

Relaxing assumption (say F is not constant, Table 1), and with source/sink $\dot{\mathbb{Q}}$:

$$\frac{\partial \mathcal{H}}{\partial t} + \frac{\partial \mathcal{H}}{\partial C_1}\frac{dC_1}{dt} + \frac{\partial \mathcal{H}}{\partial C_2}\frac{dC_2}{dt} = (F_{en} + F_{ex})\frac{dr}{dt} \pm \dot{\mathbb{Q}}. \qquad (11)$$

Equation (11) describes time evolution of asset in a social field. Given a society Ω we can assume that rate of change of asset depends on how an asset is distributed and utilized. Following an analogy similar to Fick's second law of diffusion, we may write:

$$\frac{\partial A}{\partial t} = -D_{12}\frac{\partial^2 A}{\partial \Omega^2} = -D_{12}\frac{\partial^2(C_1 + C_2)}{\partial \Omega^2} \qquad (12)$$

where D_{12} is the capital to capabilities diffusion coefficient, a function of political economy of a region. Hence, this coefficient can vary in space and time. The equation (12) presents a circular relationship that exists between these two means of production. In fact, one complements the other. Stiglitz and Squire [21], citing progress made by South Korea, claim that income and non-income measures of development are complementary and mutually reinforcing. This coefficient determines how responsive the economic growth is to the development of the society. Furthermore, it may explain some of the discrepancies among economists [6], at times, about the effect of the economic growth on poverty dynamics.

Evolution favors those species whose energy-capturing devices are most efficient. With reference to the evolution of the organic world, Boltzmann pointed out that the fundamental object of contention in the lifestruggle is available energy[22]. Capital and capabilities are energy in the social field. In the absence of an intervention, equation (12) suggests that the advantage must go to the developed society whose energy capturing skill, in general, outweighs that of developing society. Nonetheless, the latter society may also benefit sometimes during the process, partly due to the difference between social and financial cost-benefit, among many other things.

Equation (12) also provides an estimate of exogenous force (F_{ex}) due to the difference in economic temperatures between societies (say Ω_i and Ω_j). In this particular case D_{ij} may help quantify the catchup in the process of development[23, 24]. If A and B are two societies of economic temperatures T_E^A and T_E^B respectively, and $T_E^A > T_E^B$. Then, the catch-up rate of development $= f(T_E^A - T_E^B)$.

These analytical models are useful in order to bring forward additional insights to many social dynamics, but nonetheless must be assessed carefully together with underlying assumptions and limitations.

ECONOMIC TEMPERATURE VERSUS HUMAN DEVELOPMENT INDEX (HDI)

The economic temperature is the product of the social strength and the trust vector. At present, the HDI compares the social strength S that incorporates three qualities a society values: income, health, and education. Figure 3 taken from the Technical Notes of the Human Development Report (HDR) [25] presents the three HDI dimension indices that are aggregated into a composite index using geometric aggregation.
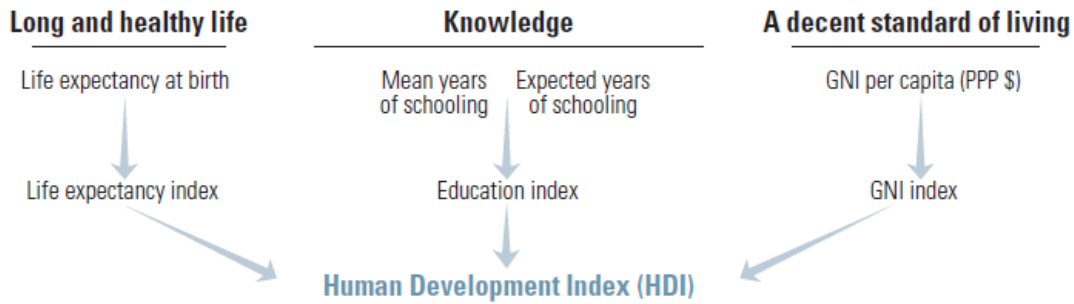
Source: Technical notes/HDR 2014

Figure 3.Human Development Index Calculation, 2014.

In terms of the social asset, income belongs to the capital set (kinetic asset), while the other two qualities (health and education) belong more to the capabilities set (potential asset). These qualities are a few of many dimensions that members of the society may value. However, in many cases, especially in a developing country, these qualities may not be enough to sustain the hopes and aspirations of its members, especially among the younger generation. These qualities are the means not the ends. If these qualities cannot help lead to a meaningful life in the society, they are not worth as much to human development. Hence, how these qualities help build trust among the society and its members are important variables of human development metrics. As it is now computed (Figure 3), the HDI does not take into account variables to gauge harmony between society and an average individual, and the impact of development on natural environments.

In a race toward material success, many of our actions are motivated by short-term private gains. The corporate world and our education systems are teaching us to value short-term, individual gains over long-term social benefit. Accordingly, social norms increasingly value material success over any other qualities. Even in many advanced societies, the capital one controls is linked to success and fortune, and accordingly to having social privilege. This is a commonplace many of us try to emulate. These myopic activities create an undue pressure on the younger generation especially, and the trust vector between this generation and society is deteriorating, mainly in the developing countries. This has led to increased migration, asylum trends in developed countries, and further exacerbated social and regional instability in many parts of our beautiful blue planet.

The trust vector encompasses an aggregate (and unique) perspective of individuals toward their society. One may argue about identifying trust of the individual on each quality (or dimension) a society may value, and aggregating a number based on some mathematical or statistical formula. Considering diversity among individuals, and their unique perspectives about the social qualities, it is unlikely any such mathematics will ever exist. *Trust* is more like a personal taste than a mathematical subject. Only the individuals in question can evaluate their harmony or the trust vector with their society. The trust vector gives some reflection on the basic needs, hopes and aspirations of an individual in the society.

Hence trust vector (or social well-being) is an important variable of development. It is independent of the qualities (income, health, and education) a society may value. This variable is missing from the UNDP's composite HDI.

ECONOMIC ENTROPY

An "open system" is characterized as "a system in which both energy and matter cross its boundaries, allowing the interaction and interconnection of its own elements with the external environment." Both living organisms and economic processes are open systems. Erwin Schrodinger [26] explained how living organisms maintain life by continually drawing low entropy from their environment. Living organisms feed on *negentropy* to balance natural entropy decay inherent with life. Likewise, economic process maintains its continuity drawing on value and energy from other economic units (individual, household, or firms) of society and environment, as presented in Section 3. Any real economic process that adds value, in general, also exports high entropy to the ecosystem. It is the added value and energy by virtue of which a society, as well as an individual, enhances its strengths over time.

If dSIis the change in entropy strength of a society Ω of strength S, the change in economic entropy, following the analogy from thermodynamics, can be written as

$$ds = \frac{dSI}{S} = I\frac{dSI}{SI}. \qquad (13)$$

By integrating, we get

$$s = I\log(SI). \qquad (14)$$

This equation is similar to the Boltzmann equation[27] rewritten in thermodynamics as

$$s = \kappa \ln W \qquad (15)$$

where $\kappa = R/N_A$ is the Boltzmann constant, and W is the thermodynamic probability of a macrostate.

For a society Ω, an average individual strength can be written in terms of Hamiltonian $\mathcal{H} = \mathcal{H}$ (S, I, r, t) as $\bar{I} = \mathcal{H}/N$. Unlike κ, the average individual strength is not a constant, but rather is a monotonic function of $\mathcal{H}$. Moreover, the Social Field as in [HP01] being a quasi-conservative field, in general, $\bar{I}$ must also increase monotonically with time.

In terms of social asset $A = C_1 + C_2$, the economic entropy (14) can be written as

$$\Delta s \quad = dSI/S = 2\, dAr/S = 2/S\,[Adr + rdA] \qquad (16)$$

$$\text{or,} \quad S\,\Delta s = 2\,[(C_1 + C_2)\,(r_2 - r_1) + r(dC_1 + dC_2)]. \qquad (17)$$

In order to track the change of economic entropy in the society, as equations (16) and (17) suggest, either we will need to quantify the entropy strength (SI) or we will need a mechanism to keep track of time evolution of social asset A, the sum of capital and capabilities. The *Inclusive Wealth Report: Measuring Progress Toward Sustainability*[28] concedes the inability of the HDI to capture the change in natural asset as a stimulus, in part, for the environmental decline and degradation. A double-entry bookkeeping system, considering both the society and ecosystem, may help compute entropy increase as a result of development process. Hence incorporating the economic entropy into the development metrics may render the HDI a more useful indicator of overall development.

CONCLUDING REMARKS

The Social Field Theory (SFT) provides an insight on variables to be identified and systematically measured in the social science domain to advance analytical study. This preliminary paper uncovers some of those variables and presents a scientific framework for measuring development. The economic temperature (S/r) defines magnitude, whereas the economic entropy (dSI/S) defines a direction of development. We present a methodology to compute change of entropy in a social field associated with development process. In order for the UNDP's HDI to measure development more effectively, it needs to encompass an additional variable, at least, such as the trust vector of the SFT that measures harmony between the society and an individual. The HDI continues to stand for better things as MahbubulHaq intended during its inception. However, if HDI can evolve toward a vector represented by the duo – economic temperature and economic entropy – the HDI may also be able to capture the "complex reality" better.

REFERENCES

[1] Sen, A., Development as Freedom, New York: Alfred A. Knopf, Inc., 1999.

[2] Nussbaum, M. C., Women and Human Development: The Capabilities Approach, Cambridge: Cambridge University Press, 2000.

[3] Poudel, R., Zheng, K.,Wood D. and McGowan, J. G., "Atomic Analogy of Poverty," *Energy for Capabilities Development,* p. 1 – 7, 2014.

[4] Ravallion, M.,"Mashup Indices of Development," Oxford University Press, 2011.

[5] World Bank Group, "World Development Report 2015 : Mind, Society, and Behavior.," World Bank, Washington, DC, 2015.

[6] Poudel,R. and McGowan, J. G., "Economic Growth, Development, and Poverty Dynamics: An Insight from The Social Field Theory," *Energy for Capability Development,* p. 1 – 28, 2015.

[7] Lewin, K.,Resolving social conflicts & Field theory in social science, Washington, D.C.: American Psychological Association, 1946, p. 338.

[8] Wright, Q., A Study of War, Vols 1-2, Chicago, IL: University of Chicago Press, 1942.

[9] Cantril, H., The pattern of human concerns., New Brunswick, NJ: Rutgers University Press, 1966.

[10] Rotondi, C. "Competition and economic temperature: The entropy law in Emanuele Sella's work," in *Economics and Interdisciplinary Exchange*, London, Routledge, 2001, p. 150 – 170.

[11] Fisher, I., Mathematical investigations in the Theory of Value and Prices, New Haven: Yale University Press, 1892.

[12] Bohr, N.,"On the Constitution of Atoms and Molecules, Part I," *Philosophical Magazine,* vol. 26, no. 151, p. 1–24, 1913.

[13] Haq, M. u.,Reflections on Human Development, Oxford University Press, 1995.

[14] Fukuda-Parr, S., "The Human Development Paradigm: Operationalizing Sen's Ideas on Capabilities," *Feminist Economics,* vol. 9, no. 2-3, pp. 301-317, 2003.

[15] Jahan, S.,"Evolution of the Human Development Index," in *Handbook of Human Development: Concepts, Measures, and Policies*, Oxford University Press, 2009.

[16] Stanton, E. A.,"The Human Development Index: A History," Political Economy Research Institute (PERI), University of Massachusetts, Amherst, 2007.

[17] Ivanova, I.,Arcelus F. and Srinivasan, G.,"An assessment of the measurement properties of the human development index," *Social Indicators Research,* vol. 46, p. 157–179, 1999.

[18] Ravallion, M., "Troubling tradeoffs in the Human Development Index," *Journal of Development Economics,* vol. 99, no. 2, p. 201–209, 2012.

[19] Stiglitz,J.,Sen, A. and Fitoussi, J., "Report by the Commission on the measurement of economic performance and social progress," 2009.

[20] The Blue Planet Prize laureates, "Environment and Development Challenges:The Imperative to Act," The Asahi Glass Foundation, 2012.

[21] Stiglitz,J. E. and Squire, L.,"International Development: Is It Possible?," *Foreign Policy,* pp. 138-151, 1998.

[22] Lotka, A. J.,"Contribution to the energetics of evolution," *Proceedings of the National Academy of Sciences of the United States of America,* vol. 8, no. 6, pp. 147 - 151, 1922.

[23] Nelson, R. R.,"Economic Development from the Perspective of Evolutionary Economic Theory," *Oxford Development Studies,* vol. 36, no. 1, pp. 9-21, 2008.

[24] Chanda,A. and Putterman, L.,"Early Starts, Reversals and Catch-up in the Process of Economic Development," *The Scandinavian Journal of Economics,* vol. 109, no. 2, p. 387–413, 2007.

[25] UNDP, "Human Development Report," United Nations Development Programme (UNDP), New York, 2014.

[26] Schrodinger, E.,What Is Life?, Cambridge: Cambridge University Press, 1944.

[27] Lee, J. F., Sears, F. W. and Turcotte, D. L., Statistical Thermodynamics, Addison-Wesley Publishing Company, Inc., 1963.

[28] United Nations University International Human Dimensions Programme (UNU-IHDP) and United Nations Environment Programme (UNEP), Inclusive Wealth Report 2012: Measuring Progress Toward Sustainability, Cambridge: Cambridge University Press, 2012.

ESPERANTO AND THE UNIVERSAL LANGUAGE, OR BETWEEN AN ARGUABLY FAILED EXPERIMENT AND NATURAL EVOLUTION TOWARDS A GLOBALIZED LANGUAGE

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Abstract: *In today's context of increasing multifaceted globalization, establishing and encouraging the use of some kind of lingua franca for the (economy and culture of the) world tends to become (yet again) a question of top interest. The author's aim was to analyze the case of a number of constructed languages, in relevant contradistinction to today's evident prevalence held by English as a tool of international linguistic communication. Finally, the (still) stable and substantial position of Latin (and post-Latin, or Romance) vocabulary is brought to attention, in the same linguistic and communicational context. The conclusions of such demonstrably failed experiments as those illustrated by Esperanto or Volapük point to natural evolution as the only humanly genuine possibility of achieving mandkind's desired functional harmony, accord and profound unity in the field of communication.*

Keywords: *globalization, constructed languages, lingua franca, Esperanto, English, Latin, Anglicism*

1.Introduction. *Esperanto* is the most representative materialization of the understandable human obsession with "effective" and "scientific" simplification – which marginally refers to what Henri Bergson would have called "du mécanique plaqué sur du vivant". Unlike Esperanto, *Ivrit* (or Modern Hebrew), the official language of the state of Israel, is a particularly difficult language, yet it is firmly rooted in traditional and conventional linguistic norms, which seems to have helped it to revive. Similarly, *Latin* was (and still is) a rather complex, substantial and complicated language, and also a rich idiom (not only in point of vocabulary – having many different loans from Etruscan, Greek, and the language of the Gauls and other Celtic populations). A long time ago Latin was perceived (and used) as *the universal language*, or *lingua franca*; it represented a demonstrably superior communication tool, which *was* (and was also considered to be) very fine, very complex and highly nuanced – with extremely fine and specialized shades of meaning and use. But (classical) Latin itself drew on older learned languages, such as old Greek; here are some examples of Latin words taken from the ancient Greek – especially in translation, or *modelled* – but also "learned" words that are "popular words" today, used and understood by practically everyone in the world, mainly in scientific and technical media, or by the indirect intermediary of English: such English words as *quality, quantity, quintessence, chair, church, butter,* or *university.*

2. Esperanto is a constructed international auxiliary language – and the most famous of them all. **The father of**

Esperanto was the Jewish-Polish ophthalmologist **Ludwig Lazarus Zamenhof** (1859-1917). Zamenhof was born in Białystok, a multi-ethnic city that was part of the Russian Empire, and is nowadays located in North-Eastern Poland. The city was home to a polyglot mixture of Poles, Russians, Jews, Germans and Lithuanians. Zamenhof believed that much of the distrust, tension and misunderstanding between the different ethnic groups was a result of language differences, so he made up his mind to create an international language that could be used as a neutral *linguafranca*, and therefore help to break down language barriers; consequently, he thought that if there were an auxiliary, neutral language that were understood by all the ethnic groups and nations, the entire world would be more peaceful and prosperous: "I was brought up as an idealist; I was taught that all people were brothers, while outside in the street at every step I felt that there were no people, only Russians, Poles, Germans, Jews and so on. This was always a great torment to my infant mind, although many people may smile at such an 'anguish for the world' in a child. Since at that time I thought that 'grown-ups' were omnipotent, so I often said to myself that when I grew up I would certainly destroy this evil"; "Were there but an international language, all translations would be made into it alone (…) and all nations would be united in a common brotherhood". Actually, the idea of a system or idiom of international communication, meant as a linguistic and cultural bridge for understanding between speakers of different languages, appealed to many thinkers throughout the history of humankind, such as Leibnitz, Comenius or Descartes.

Turning to profit his native inclination towards foreign languages, Zamenhof began working on that project, which he materialized in the shape of a book, titled *Unua Libro* ("First Book"), published on 26 July 1887 and signed with the pseudonym *Dr. Esperanto*(*Esperanto* translates as "one who hopes" or "the hoping one") – though the name for the language was simply *La Internacia Lingvo* ("The International Language"). The *Unua Libro* contained 920 roots from which tens of thousands of words could be formed. It was accompanied by the publication of the *FundamentaGramatiko* ("Fundamental Grammar"), which consisted of 16 basic grammatical rules. Zamenhof renounced all rights to Esperanto and encouraged comments and suggestions on the development of the newly created language.

Besides the need for there being one language worldwide, a universal idiom, an easy-to-learn language with lexical roots extracted from most natural languages in the world – in the hope that thus international understanding, harmony between people from different countries would be fostered, and eternal peace would be

established across the globe –, Zamenhof declared he had created the language to reduce the "time and labour we spend in learning foreign tongues". *Esperanto* was therefore intended to serve as an international auxiliary language, i.e. as a universal second language, not to replace ethnic languages – a goal widely shared among Esperanto speakers in the early decades of the movement.

Zamenhof himself summed up the main goals of the new language: (1) "To render the study of the language so easy as to make its acquisition mere play to the learner"; (2) "To enable the learner to make direct use of his knowledge with persons of any nationality, whether the language be universally accepted or not; in other words, the language is to be directly a means of international communication"; (3) "To find some means of overcoming the natural indifference of mankind, and disposing them, in the quickest manner possible, and en masse, to learn and use the proposed language as a living one, and not only in last extremities, and with the key at hand". He wanted the new universal language, or the general world language (in his words: "the proposed language") to be learnt and used by the whole of mankind, "en masse", "as a living one". Zamenhof also intended to "enable the learner to make direct use of his knowledge with persons of any nationality, whether the language be universally accepted or not; in other words, the language is to be directly a means of international communication". An increasing number of supporters subsequently gathered around the initial concept, because a related idea was also advocated, i.e. the idea of introducing a single currency.

3. Spreading. Zamenhof's invention quickly spread worldwide. Esperanto is now the most widely spoken constructed language in the world. Zamenhof spent some ten years after the publication of his book translating literature into Esperanto as well as writing original prose and verse. The number of speakers grew rapidly over the next few decades, at first primarily in the Russian Empire and Central Europe, then in other parts of Europe, the Americas, China, and Japan. In the early years, speakers of Esperanto kept in contact primarily through correspondence and periodicals, but in 1905 the first world congress of Esperanto speakers (*La Unua Universala Esperanto Kongreso*) was held in the French town of Boulogne-sur-Mer. It was then that the insignia of the Esperanto movement were agreed on: the green star (a symbol of hope), the flag and the anthem. Since then world congresses have been held in different countries every year, except during the two World Wars. Since the Second World War, they have been attended by an average of more than 2,000 people and up to 6,000 people.

At the turn of the 20th century and later, the autonomous territory of Neutral Moresnet (situated between Belgium and Germany, 1816-1920) had a considerable proportion of Esperanto-speakers among its small and multiethnic population; there was a proposal to make Esperanto its official language. After the First World War, there was a proposal for the League of Nations to accept Esperanto as its working language: there was only one vote against, yet the French representative used his veto right. However, the League recommended that its member states include Esperanto in their educational curricula. For this reason,

many people see the 1920s as the heyday of the Esperanto movement. At one point, anarchism, as a political movement, was very supportive of Esperanto. For such and various other reasons, Esperanto attracted the suspicion of many states, e.g. Nazi Germany, Imperial Japan, Francoist Spain (until the 1950s), and the Soviet Union (1937-1956), though at some point Stalin himself learnt Esperanto. Fascist Italy allowed the use of Esperanto, finding its phonology similar to that of Italian.

Although no country has adopted Esperanto officially (or recognized it as its secondary language), Esperanto was recommended by the French Academy of Sciences in 1921 and recognized by UNESCO in 1954 as a medium for international understanding. UNESCO also recommended, in 1985, that international non-governmental organizations use Esperanto. Esperanto was the 32nd language accepted as adhering to the "Common European Framework of Reference for Languages" in 2007. It entered the education system of several countries such as China and Hungary: the Hungarian Academy of Sciences considered that Esperanto fulfilled all the requirements of a living language. Esperanto is also the first language of instruction and administration of the International Academy of Sciences in the Republic of San Marino.

Today Esperanto is the most widely used international auxiliary language and is particularly popular in Eastern Europe (Hungary, Bulgaria, the former Yugoslavia), China, East Asia, and South America. Esperanto literature includes books, magazines and poetry. Some of the literary works are originally written in Esperanto while others are translated from other languages. There are also Esperanto songs and scores of radio and TV stations broadcasting news bulletins in Esperanto for an audience estimated to 2 million people. News is broadcast by the China Radio International, and the Chinese government has used Esperanto since 2001 for daily news on china.org.cn. There is also an internet magazine called *El Popola Ĉinio*. Likewise, the Vatican Radio has an Esperanto version of its website. The US Army has published military phrase books in Esperanto. Similarly, Esperanto is the working language of several non-profit international organizations. The largest Esperanto organization is the World Esperanto Organization, which has an official consultative relationship with the United Nations Organization and UNESCO. The most popular online learning platform for Esperanto, *lernu!*, had 150,000 registered users in 2013. *Esperanto Wikipedia* is the 32nd-largest Wikipedia as measured by the number of articles: with more than 100,000 articles, Esperanto stands alongside of such languages as Romanian, Greek, Bulgarian or Danish. Recently the application Google Translate was introduced.

It seems there are approximately 1,000-2,000 native speakers of Esperanto (people who learned Esperanto from birth), 10,000 people who can speak Esperanto fluently, 100,000 can use it actively, 1 million understand a lot of Esperanto, and about 10 million have studied it to some extent. As most sources admit, today up to 2,000,000 people worldwide speak Esperanto to varying degrees. Yet, given that there are no detailed sampling data, or any reliable census data, it is impossible to say the number of

Esperanto speakers with certainty. According to more recent estimates, about 0.03% of the world's population speak the language, which represents a level of popularity unmatched by any other constructed language, while admittedly very far from achieving Zamenhof's goal of a universal language. Several estimates of the number of Esperanto speakers were made. For instance, Sidney S. Culbert, former psychology professor at the University of Washington, concluded that between one and two million people speak Esperanto as "professionally proficient" users (i.e. are able to communicate moderately complex ideas without hesitation, and to follow speeches, radio broadcasts, etc.), a figure challenged by many experts, including Marcus Sikosek. Finnish linguist Jouko Lindstedt,a specialist in native-born Esperanto speakers, made the following estimates concerning the overall proportions of language skills within the Esperanto community: 1,000 have Esperanto as their native language; 10,000 speak it fluently, 100,000 can use it actively, 1,000,000 understand a large amount passively, 10,000,000 have studied it to some extent at some time. However, the number of textbooks sold and membership of local societies put "the number of people with some knowledge of the language in the hundreds of thousands and possibly millions".

In Romania, Esperanto compelled recognition with some difficulty, despite a promising start during the reign of the Hohenzollern dynasty. Queen Elisabeth (or Elisabeth of Wied) encouraged the Esperanto movement. She was also quite famous as a poet(ess), by the pseudonym *CarmenSilva*, so she ceded the Romanian Esperantists the translation rights for her verse. Later, things changed and the spreading of Esperanto in Romania was largely blocked.

*M*ost Esperantists think that the language is relatively easy to learn for Romanians, so that, if one studies it carefully and diligently, in four months one can read it fluently and express oneself beautifully. Speaking Romanian can indeed help one enormously, since 70% of Esperanto roots are Latin, 20% are English, and 10% are Slavic, Greek, etc.

4. Some of the main linguistic **characteristicfeatures** that should be mentioned are the following: when you hear it, the language sounds rather strange, somewhat reminding one of Italian or Spanish, but it is neither of them – it is punctuated with lots of terms from old Greek, English, Russian and Latin. Esperanto has only 16 grammar rules, with no exception whatever. The words are solely based on roots, and the suffixes and prefixes can be combined so that from a single root one can build as many as 25 different words. Actually, this system of combining words can also be found in some Asian languages – so that native speakers of such languages will find that Esperanto is not an intractable challenge.

In terms of **classification** or **typology**, scholars generally consider that, in its capacity as a constructed language, Esperanto ought not (logically and naturally) to be related genealogically to any particular natural language. Yet one can empirically note that its grammar, semantics, vocabulary, phonology and orthographyare substantially based on the Indo-European languages actually spoken in

Europe. The Esperanto vocabulary is primarily derived from the Romance languages (i.e. two-thirds), with a relatively minor contribution from Germanic languages (i.e. one third), and some comparatively negligible contributions from Slavic languages and (old) Greek. Its sound inventory (or phonematics) and much of its semantics are essentially Slavic. While the derivation system is not particularly European, the inflection system is. Other aspects of the language, including pragmatics, were influenced by the native languages of the early authors: Russian, Polish, German, and French. In Paul Wexler's view, Esperanto is nothing but relexified Yiddish (which in turn is considered to bea relexified Slavic language). Thus, the lexicon of Esperanto is prevalently Romanic (or Romance), its morphology is intensely agglutinative, and some isolating features are superadded. There are prepositions, and the default word order is SVO (Subject-Verb-Object). Adjectives are usually placed before the noun, though this is no strict rule. The core vocabulary of Esperanto, defined by *Lingvo Internacia* (1887), listing 900 lexical roots, could be expanded into tens of thousands of new words by means of affixation (prefixation and suffixation), and compounding, e.g.*lerni* "to learn", *lernejo* "a school", *lernanto* "a pupil/student", *lernejestro* "a headmaster"; most affixes can also function as separate words, e.g. *estro* "leader/head". The process of by stringing together prefixes, roots and suffixes is highly regular, so that people can create new words as they speak and be understood. Compound words are formed with a modifier-first, head-final order, very much as in English (compare, e.g., *housework* and *workhouse*). In 1894, Zamenhof published the first Esperanto dictionary, *Universala Vortaro*, containing many more roots. The speakers could choose to borrow new roots when needed; however, it was recommended, that they mostly use international forms, subsequently deriving related meanings from these. Lots of new words have been borrowed, essentially (though not only) from European languages, many of them becoming widespread, especially technical and scientific terms. Naturally enough, there practically no idiomatic or slang terms and phrases in Esperanto.

The **phonology** of Esperanto comprises 23 consonants, five vowels (like those in Spanish, Modern Greek, Modern Hebrew and Swahili – i.e. [i], [e], [a], [o], [u]), plus two semivowels, which can combine with the vowels to form six falling diphthongs. Stress is on the penultimate vowel, with very few exceptions.

The 28-letter **alphabet** is based on the Latin script, using a one-sound-one-letter principle, except for [d□z]. The Esperanto alphabet includes six letters with diacritics: **Ĉĉ, Ĝĝ, Ĥĥ, Ĵĵ, Ŝŝ, Ŭŭ**. (They can be replaced with ch, gh, jh or cx, gx, jx, or c', g', j', etc.). The letters *q*, *w*, *x* and *y* are only used when writing unassimilated foreign terms or proper names. All unaccented letters are pronounced approximately as in the International Phonetic Alphabet, with the exception of *c*. By and large, spelling conventions are similar to those in Polish.

As far as its predominantly Romance **grammar** (i.e. morpho-syntax)is concerned, there are specific suffixes (i.e. grammatical endings) that mark the different parts of speech: all singular common nouns end in *-o*, all adjectives

end in -*a*, all (derived) adverbs in -*e*, and all verbs in one of six tense and mood suffixes (e.g. -*as* for the present tense). There are only two cases: nominative (for the subject) and accusative (for direct objects, and, following prepositions, to indicate movement). Plural subject nouns end in -*oj*, singular direct objects end in -*on*, and plural direct objects end in the combination -*ojn*. Adjectives agree with the head nouns: singular subject (-*a*), plural subject (-*aj*), singular object (-*an*), plural object (-*ajn*). There are six verb inflections, corresponding tothree tenses and three moods: present tense (-*as*), future tense (-*os*), past tense (-*is*), infinitve (-*i*), conditional (-*us*), jussive – used for wishes and commands (-*u*). Verbs have no person or number marks. The article (*la* "the"), the demonstratives (e.g. *tiu* "that") and the prepositions (e.g. *ĉe* "at") come before the respective nouns. Similarly, there is negative position for the negative particle *ne* "not" and the conjunctions (e.g.*kaj* "and", *ke* "that").

Here are some useful Esperanto words and phrases: *Saluton*! (Hello!), *Jes* (Yes), *Ne* (No), *Dankon* (Thank you), *Ĝuste* (OK), *Bone* (Right / All right), *Tute bone* (All right), *Bonan matenon / vesperon / nokton* (Good morning / evening / night), *Bonvolu* (Please), *Sanon*! (Bless you!), *Gratulon* (Congratulations!), *Kio estas via nomo*? (What is your name?), *Kio estas tio*? (What is this?), *Ĉu vi parolas Esperanton*? (Do you speak Esperanto?).

Currently the majority of Esperanto speakers learn the language through self-directed study, online tutorials, and correspondence courses taught by volunteers.More recently, free teaching websites, like *Duolingo* and *lernu!*, have become popular. Esperanto instruction is occasionally available at schools (e.g. four primary schools in a pilot project under the supervision of the University of Manchester), and by some 70 universities all over the world.

Although created artificially, Esperanto, a *constructed* language, seems to be a living idiom, which managed to rank in the top 100 languages of the 6,800 existing across the globe – all arguments for the association European Esperanto Union to militate with the EU bodies for the adoption of Esperanto as an auxiliary EU language, supporting a more effective and non-discriminatory type of communication.

Moreover, Esperanto is seen by many of its speakers as an alternative or addition to the growing use of English throughout the world, offering a language that is easier to learn than English.Various didacticists have estimated that Esperanto can be learned in anywhere from one quarter to one twentieth the amount of time required for other languages. For instance, the Institute of Cybernetic Pedagogy at Paderborn (Germany) has compared the length of study time it takes natively French-speaking high-school students to obtain comparable 'standard' levels in Esperanto, English, German, and Italian. Here are the results: **2,000** hours studying German = **1,500** hours studying English = **1,000** hours studying Italian (or any other Romance language) = **150** hours studying Esperanto.

Among other achievements to the credit of Esperanto as an international language, it can be added that is has seen extensive use in commerceand trade, as Esperanto business groups have been active for many years. The French Chamber of Commerce did research in the 1920s and reported in The New York Times in 1921 that Esperanto seemed to be the best business language. Significantly, a message in Esperanto was recorded and included in *Voyager 1*'s Golden Record.

5. If we briefly consider the measure to which its **creator's goals** were achieved, we must conclude things are rather inconclusive. Consequently, Zamenhof's essential goal to "enable the learner to make direct use of his knowledge with persons of any nationality, whether the language be universally accepted or not", as he wrote in 1887, seems to have been achieved, since the Esperanto language is currently spoken by people living in more than one hundred countries. On the other hand, one common criticism made is that Esperanto has failed to live up to the hopes of its creator, who dreamed of it becoming a universal second language. Some critics say that, at one point in its evolution, Esperanto speakers began to see the language and the culture that had grown up around it as ends in themselves – though Esperanto was not adopted by the United Nations or other international organizations. Some people go as far as saying that Esperanto now seems to have become history, and lost interest because English is the universal language of communication.

6. Apart from Esperanto, a number of other **International Auxiliary Languages** are / were also in (more or less extensive) use: *Volapük, Ido, Interglossa, Interlingua, Interlingue / Occidental, Interslavic, Lingua Franca Nova, Lojban, Novial, Romániço, Slovio,Folkspraak, Blissymbolics*.

Volapük(meaning "World Language") was invented in 1879 by Johann Martin Schleyer, a German priest who lived in Baden. Schleyer claimed the idea for creating an international language was suggested to him by God in a dream. His aim was to create a language which was "capable of expressing thought with the greatest clearness and accuracy" (Sprague, 1888) and was easy for as many people as possible to learn. Schleyer based the vocabulary of Volapük on English, German and Latin and tried to eliminate sounds that would difficult for speakers of other languages to pronounce. Few of the resulting words are easily recognisable to English, German or Latin speakers. Schleyer also tried to reduce words to one syllable, and devised a complex set of grammatical rules for his language – a Volapük verb can have over 500,000 forms. At its peak, Volapük had over 100,000 speakers. The Volapük movement started to come apart after the third world congress in 1889. After L. L. Zamenhof published his first work on Esperanto, the latter language soon became the international auxiliary language of choice for Volapük enthusiasts and many others.

Ido: *Ido* is a reformed and somewhat simplified version of Esperanto developed by a number of linguists and scientists including Dr Louis de Beaufront, Professor Louis Couturat, Professor Richard Lorenz, Professor Wilhelm Ostwald, Professor L. Pfaundler, and Professor Otto Jespersen. The main reforms in Ido are in orthography – no diacritics are used, and in the marking of the accusative, which is used only if necessary. There are also differences in vocabulary and affixes. For those already familiar with

Esperanto, Italian, Latin or any of the other Romance languages, Ido is easy to learn. Other changes in Ido include the introduction of gender-neutral nouns with optional endings to indicate gender, a gender-neutral third person pronoun (*lu*), and elimination of the need for adjectives to 'agree' with the nouns they qualify. The estimated number of people who speak Ido is between two and five thousand

Interglossa: *Interglossa* or *Glossa* was devised by Lancelot Hogben (1895-1975), Ronald Clark and Wendy Ashby to aid communication between speakers of different languages and so be a supplement to national languages. Interglossa is an isolating language (words do not change to show their grammatical function). The bulk of Interglossa vocabulary is based on Latin and Greek words, and there are some influences from Chinese, Creole languages of Africa, pidgin languages and English.

Interlingua: *Interlingua* is an international auxiliary language developed by the International Auxiliary Language Association with financing from the Rockefeller Foundation, The Carnegie Corporation, the Research Corporation and principally the family of the heiress Alice Vanderbilt Morris and her husband and children, who were deeply interested in the problem of international communication.

The idea of Interlingua is that its vocabulary is not an invention but an objective extraction and standardization of the international vocabulary in the major European languages. English, French, Italian, and Spanish/Portugese were initially chosen as sources for international words because these languages are major centers of radiation and absorption of words to and from other languages and are extensively involved in economic, scientific and cultural exchange between nations in the world. German and Russian were later added as alternative sources. Words were deemed international if they occurred in similar forms and with the same meanings in at least three of these languages. The form by which a word was standardized in the international vocabulary was the nearest etymological prototype. This was the theoretical or historical ancestor common to all its variants as well as the stems of its derivatives in the contributing languages, from which the variants deviate as monolingual transformations characteristic of their respective languages. The resultant form also could not be conditioned by a trait restricted to one contributing variant. The work of compiling the international vocabulary was begun under the direction of the English Esperantist and German philologist, William E. Collinson, at the University of Liverpool between 1936 and 1939. In 1951 Dr. Gode completed the Interlingua-English Dictionary (IED), which contains over 27,000 words. The dictionary was accompanied by publication of the Interlingua Grammar by Alexander Gode and Hugh E. Blair. The grammar of Interlingua is a minimum grammar for use of the international vocabulary of the dictionary as a language. The idea of the grammar was that no grammatical feature of its contributing languages would be suppressed if it were found in all of the grammars of the contributing languages and was reflected in the forms of the international vocabulary. Conversely, no grammatical feature was retained if it were missing from at least one of the contributing languages. Hence Interlingua has no

grammatical gender, no agreement between nouns and adjectives in gender and number, no personal inflections of verbs. Verb tenses are similar to those in English. Grammatical particles are essentially Romance. Affixes are prototypic forms of affixes in the contributing languages, and are often, by reason of the history of these languages, of Latin or Greek form. Word derivations with roots and affixes follow closely the natural forms in the contributing languages. The result is a language that is easy for speakers of European languages to learn and even understand, sometimes at first-sight. Interlingua can also serve as a bridge to the Romance languages, or from these and other languages to English. Dr. Gode often described Interlingua as "Standard Average European".

Interlingue or **Occidental**: *Interlingue* is an international auxiliary language developed by Edgar von Wahl, who published details of the language in his magazine *Kosmoglott* in Reval (which is now Tallinn, in Estonia) in 1922. In 1929, von Wahl's magazine was renamed *Cosmoglotta* and was published entirely in his language. The language was originally called Occidental, as its vocabulary was based wholly on the major Western (Occidental) languages. Edgar von Wahl sought to utilise the international vocabulary that already existed as much as possible, but without the irregularities of the existing languages. This, he hoped, would make the language very easy to learn. After the Second World War, the language was renamed *Interlingue* as the name *Occidental* was not popular in the communist countries of Eastern Europe, where some suspected that users of the language might have counter-revolutionary tendencies.

Interslavic: *Interslavic*(меджусловјански / *Medžuslovjanski*) is an international auxiliary language designed to be used by speakers of different Slavic languages to communicate with one another. Interslavic removes the idiosyncrasies in Slavic languages that make it difficult for speakers to understand each other and focuses on the numerous words and forms that the Slavic languages have in common. Interslavic can be learned and used as a Slavic Esperanto, and can be treated as a set of recommendations for altering any Slavic language to facilitate communication with other Slavic speakers. It also helps Slavic speakers get a better understanding of texts written in any other Slavic language. This is not the first attempt to create a common Slavic language: others have been made over the centuries with names like 'Pan-Slavic', 'Common Slavic', 'Inter-Slavic' and 'Slavic'.

LinguaFranca Nova: It is based on French, Italian, Portuguese, Spanish, and Catalan. It is the creation of Dr. C. George Boeree, a professor of psychology at Shippensburg University, Pennsylvania, and was designed to be particularly simple, consistent and easy to learn. The most noteworthy of its features are: a limited number of phonemes; phonetic spelling; a completely regular grammar; a small and completely regular set of productive affixes for routine word derivation; well-defined rules for word order; its vocabulary is based on the modern Romance languages. Lingua Franca Nova is designed to be naturally accepting of Latin and Greek technical neologisms. It is designed to seem relatively "natural" to those who are familiar with Romance languages, without being any more difficult for others to learn. *Lingua Franca*

Nova can be written either with the Latin alphabet or with the Cyrillic alphabet.

Lojban: *Lojban* is a carefully constructed language designed with the intention of eliminating much of the ambiguity from human communication. It is the result of five decades' worth of collective efforts by hundreds of people. Among its most important features are: Being designed to be used by people to communicate with one another, and possibly to communicate with computers in the future. Designed to be culturally neutral. Lojban grammar is based on the principles of logic. Lojban has an unambiguous grammar. Lojban has phonetic spelling, and unambiguous resolution of sounds into words. Lojban is simple compared to natural languages; it is easy to learn. Lojban's 1300 root words can be easily combined to form a vocabulary of millions of words. Lojban is regular; the rules of the language are without exception. Lojban attempts to remove restrictions on creative and clear thought and communication. Lojban has a variety of uses, ranging from the creative to the scientific, from the theoretical to the practical.

Novial: *Novial* (or *Nov International Auxiliari Lingue*) was created by Danish linguist Otto Jespersen. He recognized a need for an international auxiliary language and thought there were many problems with Esperanto. With Novial he tried to cure those problems. He first published details of Novial in 1928 in his book *An International Language*. In 1930 he published a Novial dictionary, *Novial Lexike*, which contained some changes to the language, and further modifications were proposed during the 1930s. After Jespersen's death in 1943, Novial became dormant, but during the 1990s there was a revival of interest in the language. Novial was designed to be easy to learn with vocabulary taken mainly from Germanic and Romance languages, and grammar based mainly on English.

Romániço: Romániço is a simplified language invented in 1991 to bridge the gap between the schematic and the naturalistic in constructed languages — that is, to combine the easy-to-use grammar of the former with the more rigorously Romance lexicon and orthography of the latter. It also features: An inflectionless direct object marker. When word order alone cannot do it, Romániço has a preposition that can. Audibly compounded words. A class-indicating article. The perfect progressive tense (indicating something that started in the past and continues into the present). Consistent names for people and countries. In most languages, some peoples are named after the countries they inhabit, some countries after the people who inhabit them. Romániço resolves the matter with a single system.

Slovio: *Slovio* (*Словио*) is a simplified Slavonic language devised by Mark Hucko, which is intended as an international auxiliary language comprehensible to speakers of all Slavonic languages, who number about 400 million. Among its features the following are the most notable: Slovio can be written with the Latin or Cyrillic alphabets without any accents or special characters. It has a simple logical grammar and simple phonetic spelling.

Folkspraak: *Folkspraak* (abbreviated *FS*) is an International Auxiliary Language that is currently in development. It is intended to serve as a lingua-franca for communication with speakers of Germanic languages and it is based on features common to the major modern Germanic languages. The project is intended to be a co-operative and democratic effort by a group of people who currently meet on a Yahoo group. The project to develop Folkspraak has yet to be completed and it is beset with disagreements over such features as phonology, orthography, vocabulary, grammar and syntax. So there is currently no "official" form of Folkspraak, and there are a number of "dialects", which are individual group members' versions of how they think the language should be. The primary source languages used for the development of Folkspraak are English, Dutch, German, Danish, Norwegian Bokmål and Swedish – though some members refer to further languages, such as Frisian, Low German and Norwegian Nynorsk. The divergence of the source languages means it has frequently proven harder than first anticipated to find elements sufficient to operate the language that are truly common to a majority of the source languages. The method of deriving phonology, vocabulary and grammar for his dialect is inspired by the method used in the creation of Interlingua, but the sample of source languages are different. A lexical feature is present in Parke's Folkspraak if a cognate feature is present in three or more of the primary source languages. If a cognate feature is present in only two of the primary source languages, it can still be present in FS if it is present also in one or more of the secondary source languages. The grammar includes features that are common to all of the primary source languages. The Parke version of FS is intended to be used not just as a lingua-franca between speakers of Germanic languages, but also to help native speakers of non-Germanic languages communicate with the Germanic-speaking world, and also to be a "primer" language leading on to further study of real Germanic languages.

Blissymbolics: The system of signs called *Blissymbolics* was developed by Charles K. Bliss (1897-1985). Bliss originally called his invention *Semantography*, and intended for it to be used as a universal written language which would enable speakers of different languages to communicate with one another. Since 1971 Blissymbolics have been used mainly as a communication aid for people with communication, language and learning difficulties. Such people have limited or no ability to use ordinary spoken and/or written language but manage to learn Blissymbolics. Among its most notable features there are the following: It consists of over 2,000 basic symbols which can be combined together to create a huge variety of new symbols. The symbols can be formed into sentences and their order is based on English word order. The symbols are made up of simple shapes designed to be easy to write. Blissymbolics are used in over 33 countries.

7. Similarly, the philologist and fiction writer **J. R. R. Tolkien** was known for having created a number of constructed languages. He called this activity of inventing languages *glossopoeia*, and it was meant to parallel his idea of myth-making (or *mythopoeia*). This preoccupation started as early as his teens. Originally, he wanted to reconstruct the unrecorded early Germanic language that might have been used by the heroes of

of *Beowulf*. Principally, he concerned himself with constructing the so-called *Elvishlanguages*. He called his first *Elvin* tongue by the name of *Quenya* (c. 1915).

Tolkien's language creation followed two time dimensions: one is the fictional (i.e. the internal) timeline, and the other dimension concerns his own lifetime. He associated (artistic) language invention with synchronous evolution, and also with the history of its speakers and their mythology, and thus Tolkien developed a massive *legendarium*. The language he called *Naffarin* was the prototype for later invented languages. There followed Common Eldarin, Golgondrin and Quenya (all three offspring of Primitive Quendian); then Noldorin, Telerin, Ilkorin, Doriathrin and Avarin; the mature stage of Noldorin was Sindarin. In close conjunction with these *Elvish* idioms, Tolkien also created *Mannish* languages (when writing *The Lord of the Rings*): Haladin, Dunlendish, Drûg, Haradrim, Easterling. Other artistic language of Tolkien's devising was the *Dwarvish* idiom, called *Khuzdul*. The former set of languages was heavily inspired by Old Germanic, Welsh and Finnish, whereas the Dwarvish languages mainly relied on the pattern provided by Hebrew.

8. Finally, one can say that **Esperanto** is maybe the typical case of a project based on entirely good intentions, and conducted with enormous effort – and yet yielding results that are at *least* (or rather, at *best*) questionable… On the other hand, there are cultural and historical *models* in this communicational and cultural field, too: for instance, at one point in the past Latin was seen as the very pattern of the *universal language*; now this "universal pattern/model" is (American) English. There are voices that claim that the English language is the easiest language in the world (actually, it *is* the most widely spoken)… But it is by no means easy after a certain point in the process of learning, when it, starts more or less suddenly, to become maybe one of the most difficult languages in the world…

If one tried to substantiate the claim English currently has to the status of "universal language", one would certainly have to come up with numerous counts referring to the spreading of English as a second or foreign language throughout the world. But we actually believe that world supremacy is also (indirectly) confirmed by its (would-be) cultural entitlement, as an indirect descendant of Latin. For instance, a sketch count, or a modest statistical attempt concerning the Latin and Romance elements / roots in the English language (there are well-grounded statistics claiming that there are as many as 63% Latin and Romance roots in the whole of the English vocabulary) – plus a number of roots from ancient Greek would reveal a strong Latin and Romance presence in the lexicon of contemporary English. An equally interesting and challenging set of remarks could be made as far as the *English influences* on some languages like Serbo-Croatian, Japanese, Tagalog, Palauan, Lingala, etc., are concerned. The number of the words and phrases that the English language has "exported", which were in fact derived from Latin or Romance languages like French, Italian, Spanish or Portuguese, is by no means small. Some other interesting examples appertaining to the same context may relate to the common (brand) names that are given to new

versions or marks of cars all over the world: most of them are – or seem to be – of Latin or Romance origin, e.g. *Cielo, Dacia,Vectra, Vitara, Pajero, Nubira, Fabia, Octavia, Corolla, Terrano, Clio, Tico, Audi, Ferrari, Fiat, Uno, Volvo, Focus, Avensis, Yaris,*etc. (Lets us compare the above names with the fewer would-be Anglo-Saxon or Germanic names like *Duster, Hummer, Logan,* etc.). Similarly, we think it would not be totally amiss if someone were so intrepid as to compile a list, based on serious statistics, which represented the (tentative) inventory of the words and phrases glossed in such influential lexicographical books as *Anglicismele din limba română, Anglicismes en français*, or *Fremdwörterbuch*… We believe the outcome of such an intelelctual effort would amount to the same conclusions: Latin is still alive, at least as a "universal language" of cultural matters…

9. In order to put the above tentative **conclusion** to the severe test of statistical assessment (however partial such test may eventually be), we undertook a count on a limited, yet representative lexical mini-corpus excerpted from Romanian sources. The lexical occurrences that we have selected from various sources (primarily from the press and the Internet), which illustrate the quite numerous cohort of **Anglicisms** having made their way into contemporary Romanian (including not only well-adapted forms and meanings, but also barbarisms and solecisms, both highly specialized / 'technical' terms and inadequate forms, as well as cases of confusion, of calque / loan translation, or of more or less literal translation, etc.) amount to **429**. The overwhelming majority of those words and phrases (i.e. **337**) are of **Latin** and **Romance** origin:*account planner, body painting,call center, cameră* (cf. *aparat foto*)*, camping, card, catering, compulsiv, cottage, cover, design, developer, dial-up, docudrama, duty free, e-culture, eGovernment, e-insurance, e-mail, ePayment, fan club, fashion, file sharing, format,full options, grant, guvernanță,* "organism de *guvernanță* a unei destinaţii turistice",*hamburger, hard disc, home delivery, home delivery food, hotline, jet ski, juice, leasing, lobby, locaţie* (cf. Eng.*location*),*low budget, low cost, make-up artist, marketizator, master, masterat, masterand, masterplanul, merchandiser, migranţi, aminimiza, notebook, office, parking, PC, piercing, PR account manager, predictor, procesator, a procesa, prociclic,promoter, publisher, rating(urile),reality show, relocări, rent a car, road mover, router,sex-appeal, sitcom, smart card, snowmobil, soap opera, spam, stand-up comedy, stripper, SUV, tabletă* ["laptop"], *tattoo, teleshop(p)ing, tour manager, tour operator, travel, tuner, tutoriale, zucchini,* "să scape de *spleen* – de plictiseala ceţei britanice" (Caragiale); "un *milord* cadrilat" (Caragiale); "mândrul cântec American *Yankee Doodle*" (Caragiale), "Luca Caragiale sau *Lucky*, aşa cum l-a alintat tatăl său în copilărie", (…) "S-a căsătorit cu *Fany*, fiica deputatului Alexandru Dobrogeanu Gherea", *expresor* (cf. *storcător*), "un *mix*", "o *curiculă*", *curriculum, curriculum vitae / CV, training vocaţional,* "*traineri* pentru ceilalţi", *(un) corporatist,* "o să fie un *eveniment formal*","*exchange* la cel mai bun curs", "vine şi *adiţionalul*", "Test extrem de *anduranţă*", "all inclusive", "*provideri* (de internet)", "operaţiuni de *factoring*", "piaţa *futures*", "servicii (de) *IT*", "credit de tip *revolving*", "depozite (de tip) *cash and*

carry", *teoreticienii conspirației*, "mediul *academic*", "jurnalist *senior* TVR", "escadrilă *multirol*", "tehnologiile *newmedia*", "*establishment*-ul", "şi-a luat un aer de *vamp*", "femeia-*vamp*", "(un) *extra*", "*prequelul /* continuarea celui mai bine vândut film românesc al anului", "Camera *Comunelor*", *Cover story, Arcade*(s), "pe alte *device*-uri", "*chef* Tudor Constantinescu", "EURO TEHNO *GROUP*",*GPS, PR, Puerto Rico, Tech, Entertainment, FOTOCREDITS, E coli*, "poziții *maximaliste*", "*performance*-ul" unui anume teatru", *cafeterie,mascara, fashionistă*, "a intrat în *default*", "*Defaultul* a fost anunțat (…)", "educația *formală*", *cocktail party, private equity, investmentgrade, focus-grupurile*, "domeniul *intelligence*-ului", "*joint venture*-ul", "*tax managerul* pe Europa", "*replică* a (…)", "Frumoasa actriță a realizat (…) un *pictorial*", "companie aeriană *low-cost*", "*colar* GPS", "mecanism de *bonusare* a celor care realizează (…)", "Fost *paramedic* de la Auschwitz", "Dacă unor oameni nu le place de un profesor / *co-lucrător*", "reacţiile *'emoţionale'*", "majoritatea acestor articole sunt *emotive*", "pentru majoritatea *subiecţilor* Federaţiei Ruse", "muşchi *tensionaţi*", "*multifaţetata* (…) personalitate a (…)", "Şi-a *manageriat* foarte bine tot sezonul competiţional", "Fondatorul şi *CEO*-ul companiei", "unul dintre agenţii *megadecizionali* ai globalizării economiei de piaţă", "victorie *stagională*" (cf. Eng. *season's/seasonal*), "Exerciţiul de tip *plank*", "*emoticoane* video", "**jacheta biker din piele**", "*Trench*-uri în *tendinţe*", "declanşarea unei proceduri de *infringement* împotriva Ungariei", "un posibil *sequel*", "Coaste de porc cu sos *chives*", "12 comandamente" (cf. Eng. *commandment* "decree, order"), "personalităţi *proeminente*", "*polishareprofesională*", "au votat *brexitul*", "pronumele *emfatic*", "o reţetă (…) *versatilă*", "Un prezervativ poate fi instrumentul cel mai *versatil*", "*oponent*" al sistemului", "am *empatizat*", "o forţă de *disuasiune* în Europa de Est", "condiţii *environmentale*", *environmént, hazarde*, "trasee de *adventure* pentru copii", *retard* (pl. *retarzi*), *clasare, dezvoltator*,"acţiunea *sezonului doi* se petrece…", "*lanţul* de restaurante (…)" , "Printre victime (…) se numără mai mulţi *muzicieni*", "*schema* de imunizare (din Polonia)", "ziariştilor care *acoperă* turneul de la Madrid", "prin intermediul unei *serii* televizate", "Nu a plecat din *staţia* TV atunci când (…)", "când grupul împărţea *copii* gratuite ale constituţiei sovietice", "să aibă relaţii *extinse* cu persoane implicate politic", "la *scară extinsă*", "M-am dus la *aqua-parku'* ăla", "*Pandemoniul* închisorilor comuniste", "*Alătură-te* nouă, în Clubul *Seniorilor*!", "mii de tineri (…) *se alătură* organizaţiilor islamiste","Oficiul de *Spălarea* Banilor", "*Politicile* pe care le-a susţinut şi în care credea", "concediu *maternal*", "a *accesa* (fonduri europene)","Am o *relaţie* de vreun an", "**caribean, artefact**, "au descoperit *artifacte* care atestă faptul că (…)", *Vigilent Security*, "alături de *legiunea* de cercetători de la (…)", "Nuanţele *camel* şi cele de gri", "ideale pentru ţinutele *office* şi nu numai", "O altă tendinţă *majoră*", "la un *party* de *beauty*", "Într-o *fabuloasă* rochie roşie", "ţinută *office, casual* sau elegant", *deja vu*, "Accidentare *horror* in meciul Chievo-A.S. Roma", "E *horror*!", "România oferă *suport* emoţional şi *consiliere*", "sărăcie şi *incluziune* socială", "un scriitor *exponenţial* în Europa începutului de secol XX", "Primarul (…) s-a *reinventat*",

"Grup-ţintă", "aplicabilitatea ei *pe o scară largă*", "Într-un incident *separat* (…)", "modul în care *m-am poziţionat*", "*româncele* (…) au fost *devastate*", "o eventuală *retaliere* din partea SUA", "colecţia de bijuterii *ainclus* o brăţară (…), un colier (…)"; "încearcă *să incluzi* în programul tău exerciţii plăcute", "diferenţele de *gen* în poziţiile de conducere, aspectele de *gen* ale experienţei războiului, "egalitate de *gen*", "Există unele *voci* care susţin că (…)", "Acolo era *locat* grupul de (…)", "O serie de femei *iconice*", "majoritatea *executivilor* de pe piaţa locală", "experţi în *industriile* lor", "o *cultură* a serviciilor de calitate", "propriile *organizaţii*", "Firma (…) a *generat* (…) milioane de euro", "*disc jockey* la *Saint George*", *ortopedist*,"România are grave probleme de *poluţie*", "*Viralul* săptămânii", "Perfect *Optic Vision*", "**Îmbătrânirea artificială a vinului**", "__Cea mai *efectivă* dietă a anului 2016__", "a *agrea* cu cei de la sediu", "*S-a crescut* tempoul", "De la *hosstes* (sic!) la patroană de club", "*Transpiblock* – un *blockerprofesional*", "centrale pe *peleţi*", *organizator* ("a *notebook*"),"posibilitatea acordării *vaucerelor* de vacanţă", "aruncarea lui Elisei a fost *salvată* de (…)", "în *extratime* (…)", "Oare să fie *unchallenge*?", "*Seniorconsultant* T. Gh.", "Pui la *grill*", "Un *scouter* de la *Man. UTD* a fost demis", *le label* [printed on an official list coming from the *Conseil de la Francophonie* in Bucharest], "O *bestie* chinezească", "*specificaţii*impresionante **[for asmartphone]**", "o rezoluţie *nativă2K*", "prin *operator de turism* nu mă refeream la un *tour-operator*, ci la persoanele care au potenţialul de a exploata turistic un obiectiv (…) [later on: *agent de turism*], "în *staţiile de tren*", "femeile *atractive* au cu 16% mai multe şanse de a avea copii decât cele *comune*", "Coulibaly (…) s-a *panicat* când a fost oprit", "Asta *face sens*", "Bine! *Apreciez*!", "Terra *Automotive* Serv", "The Barber Shop", *Moving Express, Studio Cycling, Vintage Pub*, "Omnia *Training*", "*Royal Serenity* – Magazin pompe funebre", "Din fructele acestea [made of soap] nu poţi face *fresh*", "Împreună cu traseismul, *of course*", "*MoneyGold* – Amanet *&Exchange*", "o parte dintre dotările ei sunt chiar *decente*", "o *captură* video", "*captură* foto", "imagini *capturate* de sonda spaţială", "*sesiunea de glume*", "datoriile vor fi imposibil de *returnat*", "grădinile *zoo*", "a *testat* răbdarea", "*Aplică* acum *online* pentru (…)", "*aplicanţi* civili", "a *experimentat* internetul", "Omul (…) se simţea vinovat atunci când *experimenta* plăceri", "*excedă* situaţia", "La 50 de maşini, cât ar avea o *flotă* mică", "săritura a fost *validă*", "imaginea *patetică* a unei diplome banalizate", "Ce scuză *patetică*! Stai jos!", "Există multe *preconcepţii* când este vorba de relaţii amoroase", "mereu pe drum, distribuind *pamflete*", "Nu este nevoie de foarte multă *expertiză* psihologică sau sociologică (…)", "*Reabilitarea* Câmpulungului","Vai, ce minunată viaţă am acum! Mi s-a schimbat *dramatic*!","Parlamentul danez a creat *o animaţie* care îl are ca personaj principal pe un bărbat musculos", "mult mai serioasă şi *ofensivă* decât (…)", "oră de *drama* (…) ca în Anglia", "**(…) *este* contribuitor al ziarului Gândul**", "Cum scapi de oprimarea şefului *toxic*", "mesaje *toxice*", "Scandalul "Panama Papers","să discutăm pe *issues* aceste *probleme*", "arătându-i că-ţi *pasă* de ei", "**să-l interpreteze cu adevărat *genuin* pe Shakespeare**,"crime *perpetuate* de

(…)”, “metodele de *preconcepţie* nu erau definite”, “cu *determinare*şi hotărâre”, “foarte *determinaţi*şi hotărâţi”, “te *focusezi*, te concentrezi pe un *task*”, “Am şi fost *propus* spre *nominalizare*”, “Cum să fii *alert* fără să bei cafea?”, “producţia (…) *se concentrează pe* locuitorii unui oraş…”, “*absolut* (abject / convins / penibil etc.)”, “Filmul *Universitatea Monştrilor… în cinema din* 24 iunie”, “Djokovici (…), *închizând* setul la 7-5”, “au tendinţa de a conserva mai bine codul genetic”, “*Humvee*-urile *sunt istorie*”, “considerată (…) drept un “*tigru* al turismului de iarnă din România”, “mai multe specii din genul (…) *sunt raportate* ca fiind hiperacumulatori de arsenic”, “codul genetic fiind *un pod prea îndepărtat* pentru posibilităţile de azi ale ştiinţei”, “*Neadresăm* dispariţiei parcărilor”, “A *devenitparte* a Mişcării legionare mai târziu”, “A *pus România pe harta* sportului mondial”, “E ca un *Frankenstein* între ceilalţi concurenţi”, “Sunteţi real?”, “un bărbat, o femeie şi un copil, *aparent* locatari ai acestui centru de cazare”, “piramida *se crede a fi* (…), “De fapt [femeia], a fost *pronunţatămoartă*”)”.

Interestingly enough, only **92** of the terms and phrases excerpted by us illustrate the **Anglo-Saxon** (or else, Germanic) lexical domain – not only through their etymological roots, but also through their morpho-syntactic structure (involving cases of *calque*): *babysitter, beach-bar, blockbuster, body, bowling, broker, browser, businessuri, business,* “Business report”,*chat, cheeseburger, chips, click, clovn, corner, curling, dealer, desktop,drive test, e-book, evergreen, fast food, fitness,gag-man, hacker, henţ, high-life, hotdog, ice tea, laptop, milkshake, nickname, off-road, ofsaid / off-side, road show, roll-on, sandviş / sendvici, screen saver, show / şou, showroom, skateboard, slapstick(ul), snack, snooker, snowboard, software, stunt-man, swanky, top, T-shirt, week-end (trip),windsurfing,* “a *bana*”, “a da *ban*”, “pentru a-şi găsi un *job*”, “pentru un *lookdramatic*”, “Vedete în ţinute *glam*”, “la un eveniment *glam*”, “*unglamour* esenţializat”, “cu statut de *commonwealth*”, ‘*Bullying*-ul, o formă a violenţei tolerată în şcoli’, *SandraTrading,* “Vila *Old Cars*”, “Ciuc *Premium*”, “servicii de *buy back*”, “star-sistem/system”, “wireless Internet”, “Dezvoltarea pieţei locale de *outsourcing*”, “investiţii *greenfield*”, “magazine (de tip) *do it yourself*”, “operatorii *hub*-urilor”, “Cluj Arena” (cf. *Naţional Arena*), *Agora Art, Cosmetic Plant,* “Timişoara Air Show”, “Transalpina Ski Resort”, “Travel ghid”, “Unirea Shopping Center”; *Life&Style,* “Euroguard Security 2007”, *TVR News,* “*USS* Zumwalt”, “*Direct debit*: Serviciu ce permite (…)”, “în incinta Trivale Shopping Center”, “Se *iau* riscuri”, “haita de *hateri* ai Simonei”, “Vino în (…) să faci combinaţii *isteţe*!”, “au vrut să *rănească* guvernul şi băncile”, “Destul este destul!” (cf. Eng. *Enough is enough!*), “Cerul este limita” (cf. Eng.*The sky is the limit*), “Sunt o socialistă şi cred în democraţie”.

It would be an axiom to say that most Romanian employers seem to have Western aspirations, which are illustrated, among other things, by the “original” names of their companies, which have tended, for some two and a half decades, to sound like the businesses one usually sees in the American or West-European movies. Some really pompous names are used by such local investors to emphasize the fact that they are *owners* or *CEOs*, and so their businesses should conform to the image of the Western multinational companies. According to an analysis conducted by *KeysFin*, most of the active companies in Romania are called “Consulting”, while other firms have such names as “Invest”, “Company”, “Design”, “International”, “Construct”, and “Trans”. Also on the list of the most popular firm names are the terms: *Star, Trading, Tech, Business, Management, Media, Expert, Soft, Concept, Logistic, Best, Smart, Industrial, Marketing, Universal, West, Fast, Gold* and *Mega*. Such names prove that Romanian investors (despite the sheer size of their companies) try to secure a solid public image, in accordance with the idea of stability, earnestness and seriousness. They want to make an impression on their domestic customers, while trying to be able to negotiate with potential foreign partners on a would-be equal footing. If we tried the same percentage analysis as the one above, we would have to admit that the proportion of the Germanic roots as against the Latin and Romance ones is a bit higher: 22 (the sum total) to 9 (*Star, Trading, Business, Soft, Best, Smart, West, Fast, Gold*) – so, an almost balanced (50% to 50%) ratio.

In the same context – that of the practically absolute predominance of English as a provider of such “refined”, “modern” or “high-brow” (i.e. *connotative*) neologistic lexical items – we should also mention the fact that there is virtually no (consistent) *purist*, “anti-Englishing” normative filter in this country – unlike the situation in France, for instance, where there are official bodies like the *General Terminology and Neology Board* and the *Académie Française*, which are actually “policing” the inflow of Anglicisms. On the other hand, the former influence of French on modern Romanian seems to have been long gone – as well as its role as a channel for Anglicisms: for example, nobody would currently say *şocolată* (instead of *ciocolată*) or *futbol* (instead of *fotbal*), or pronounce*rugby* as [rögbi]. Thus today English seems to rule supreme as a world language.

References

[1] Avram, Mioara, *Anglicismele în limba română actuală*, Editura Academiei Române, 1997

[2] Bantaş, Andrei, *English and Contrastive Studies*, Bucureşti, TUB, 1978

[3] Bryson, Bill, *Mother Tongue – The English Language*, Penguin Books, London, 1998

[4] Ciobanu, Georgeta, *Anglicismele în limba română*, Timişoara, 1996

[5] Dimitrescu, Florica, *Dinamica lexicului românesc*, Editura *Clusium*, Cluj, 1995

[6] *Duden – Das Fremdwörterbuch*, Leipzig, 1966

[7] Lenoble-Pinson, Michèle, *Anglicismes et substituts français*, Editions Duculot, Paris, 1991

[8] Marcu, Florin, *Marele dicţionar de neologisme*, Editura *Saeculum I.O.*, Bucureşti, 2000 (MDN)

[9] Pergnier, Maurice, *Les Anglicismes*, Editions *PUF*, Paris, 1989

[10] Skeat, Walter W., *The Concise Dictionary of English Etymology*, Wordsworth, 1993

[11] Stoichiţoiu-Ichim, Adriana, *Anglomania – o formă de snobism lingvistic*, in *Comunicările* Hyperion, vol. II, Editura *Hyperion* XXI, Bucureşti, 1993, pp. 270-280

[12] Stoichiţoiu-Ichim, Adriana, *Vocabularul limbii române actuale. Dinamică, influenţe, creativitate*, Editura *ALL*, Bucureşti, 2001

[13] *The New Oxford Dictionary of English*, Oxford University Press, 2001 (OXF)

[14] *The Random House Dictionary of the English Language*

[15] *Webster's Encyclopedic Unabridged Dictionary of the English Language*, Gramercy Books, New York / Avenel, 1994 (WEB)

[16] Wells, J.C.,*Longman's Pronunciation Dictionary*, 1990