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EUC-MLGRM : a linguistic contribution towards new risk governance

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1. Risk management as international, interdisciplinary and cooperative priority.

Local, regional and national institutions are nowadays equally aware of disaster risk and more or less engaged in disaster management and risk management. But natural and industrial disasters being cross-boundary and threatening world wide, the international dimension becomes the important new task for all instances concerned. Therefore, the **EUC,** Brussels, has supported three « European » research & innovation projects (WIN, ORCHESTRA, OASIS) within its 6th framework 2004-2008, and WIN-MGRM has been conceived as their federative link. Risk is the focus also of several **EUC joint Research Centers** as e.g. the Institute for Energy, Petten, NL and Institute for the Protection and Security of the Citizen, Vulnerability Assessment, Ispra, IT. Within **EUR-OPA Major Hazard,** the **COE**, Strasbourg, has been supporting since 1987 « global » risk management activities in 27 countries of the world as have done **UN-ISDR**, Geneva in their global platforms of disaster reduction to promote risk knowledge, risk awareness and to stimulate interdisciplinary partnerships with its **IPCC** adaptation in Antalya 04/2009 in cooperation already with Norway; as well as **TIEMS**, the global Non Profit Society organizing, under the Presidency of M. Drager, Norway again, this 16th annual Congress in Istanbul to inform and educate the public in all areas of emergency management.

The Istanbul EUR-OPA Conference in October 2008 already pointed out, Risk Management, a complex interaction of human and technical elements can't be confined to a single entity, but needs interdisciplinary, international cooperation. The MGRM corresponds to this objective. Conceived within the EUC as a linguistic tool, built up on a democratic view, it offers to all users the acquisition of individual competences for the benefit of a collectively harmonized and efficient risk management. Thanks to **multilinguality,** citizens of all countries concerned can become responsible actors of Risk preparedness and Risk response. The EUC-version of this glossary exists in 5 languages : En/Fr/Ge/Sp/Ro, but EU-politics of languages invites all national languages of the member states to develop their own languages of special purpose (LSP), in order to disseminate and harmonize knowledge, to promote (inter)national communication between experts and citizens, to socialize risk management and

to let Civil society become a responsible actor of the risk management scenario. These are the reasons for our proposition to integrate Turkish risk management language, Turkish risk management knowledge and know-how into the extended international version of the MGRM in work. The project leader, the authors and editors offer the EUC version, but some financial support is necessary for electronic bibliography research, for translation and pedagogical dissemination in an innovating cooperation between Technical University and Marmara University in Istanbul, EUR-OPA MHA team in Ankara.

2. EUC- Multilingual and Multimedia Glossary of Risk Management (EUC-MGRM).

The production of thesauri, dictionaries and glossaries being an application of science of language, the authors and editors of MGRM are necessarily linguists with experience in lexico- and terminography and in the risk domain : chairpersons and their assistants at the universities of Strasbourg (Greciano, leader), Vienna (Budin), Duisburg-Essen (Hass) and Chemnitz (Rothkegel), Paris (Humbley), Iasi (Cujba) (**doc 1.1**). Referenced experts of the language and risk domains have validated the results.

MGRM is **multilingual and multimedia**. In spite of the respectable number of risk glossaries (usually in the form of simple word lists), cross-lingual difficulties arise: with entries and definitions in most international institutional glossaries (UN-ISDR, Geneva 2001) because they are monolingual and always in English. National institutions, universities and research centers create their own term-lists in their national language (SKKK, Köln 2003); sometimes they add English equivalents (CEDIM, Karlsruhe 2005). Mono-lingual glossaries combine terms with their definitions (TESEC-EUROPA Strasbourg / Tchernobyl, 2001), but bi-lingual ones offer only term correspondences without definitions (BfG, Hydrologie). For these reasons, multilingual risk glossaries with definitions specific to each language become the first necessity for international risk cooperation. Belgium, Switzerland, France, Germany, and Austria f.i. have already organized cross border training and cooperation with their neighbours, bi-lingual at least. So, in the MGRM En/Fr/Ge/Sp/Ro are source- and target language, and several other languages (Finnish, Russian, Arab) prepare to join. MGRM is multimedia : hosted at the terminology Webside at the University of Vienna http://mgrm.univie.ac.at. Users have free access to two pdf-word formatted glossaries with English and French as source languages, (**doc 1.1 & 1.2**) and to the most original tool, the only existing on-line risk-term-base/Risk-Termbank with the whole word glossary information converted into multi-term structure. (**doc 1.3**). Vienna website offers further RM Data Modeling Services in Web implementation, prototypes for e-learning with ready made in RM-language, corpus driven out of electronic corpora 450mio

words (En), 1.8 bio words (Ge) : USENET, for conceptual research & application according to protection scenarios : HYPERTEXT, and semantic structurations and logical operations : ONTOLOGY, glossary complements in respect of contemporary expectations of language science, information science and risk science.

The MGRM contains **5x220 terms, 5x350 referenced definitions, 5x1300 related terms and expressions**, won by data mining out of 14.000 pages of scientific, technical, administrative and press texts of special risk purpose, according to the multilingual and multicultural **bibliography,** research driven in (**doc 2.1**), and lexicography and source code driven in (**doc 2.2**). More than in ~~the~~ other domains, the great majority, >80% of the risk vocabulary, are compound terms, more word terms, and as such become precise, qualifying, quantifying, localizing nominations.

Two **indexes** register the 220 terms **alphabetically**, common-user-friendly for passive term research and **conceptually** for expert-users interested in disaster risk (management) knowledge and active term research, according to the disaster risk management cycle, consensually elaborated by WIN, ORCHESTRA and OASIS from pre-events: A. Risk assessment and technology, B. Public awareness, planning, forecasting, warning to the disaster events as such: C. fire, flood, and oil spill, and their corresponding equipments and operations. There are different types of vocabulary in each part, but technical terms of the satellite and informatics domain prevail in A (50-85), B (20-36), as well as in C, where tools and interventions are technology based. In accordance with modern lexicography of LSP (Copenhagen, Tübingen, Paris) this conceptual order corresponds to the overall structure of the whole glossary (conc mac over all **MGRM doc 3**).

Conceptual ordering has been chosen as the principal method for collecting linguistic material and for building terminological glossaries that progress into information ontologies. The resulting conceptual knowledge organization becomes the so-called **macrostructure** where inferential relations between the intellectual upper risk activities *(A. Risk assessment* and *B. Public risk awareness*) and the concrete concepts in the lower part of the graphic (C. *disaster events, protection equipments and rescue operations*) are visualized. This conceptual ordering confirms the empirically verified essential impact of *technology* within A. *risk assessment*, with, for instance, ***(geographic) information system, data processing, satellite, remote sensing, earth observation, precision farming,*** within B. *public (risk) awareness,* with ***civil protection, water management, emergency planning, climate monitoring, forecast, warning system, (applied) monitoring***, and finally within C: the *rescue and protection equipments and operations* of the *disaster events* : ***extinguisher,***

ventilation, hydrograph, stage gauge, oil platform, skimmer. This linguistic reality reminds of the interdisciplinary origin and impact of risk science: philosophical, technical, economic, social, ethical, and it appeals to an international cooperation and assistance, necessary for many risk-exposed countries.

The **mediostructure** of its parts is conceptual as well, focussing on semantic relations within the term field. Our proposal today is to show the termfield conceptually ordered of part *B. Public (risk) awareness* (conc med part **B. doc 4)** As fuzzy terms characterize human sciences (Pawlowski 1980), ***public risk awareness*** implements ***information, knowledge, communication, acceptance, resilience, reliability, aid, management, assessment,*** so that conceptual networking becomes an interesting and helpful exercise to differentiate the

- syno-, hyper- and hyponyms: ***public communication / public information, disaster management / disaster aid / disaster response,***
- properties: ***sustainability, protection, precaution, prevention, safety,***
- specific equipments: ***(flood) hazard map, emergency plan***
- rescue operations: ***data capture, land use, precision farming, climate monitoring, forecast, warning, alert, alarm.***

Three linguistic principles govern the **microstructure** of the article of each term itself (ling mic art **doc 5** ***civil protection*** **&** **6** ***safety report***). In accordance with new terminography, they indicate for each language

- the minimal but necessary language specific grammar and a semantic information common to all languages, and offer
- multiple references for the definitions, unavoidable for unambiguous communication and the comparison of which being the starting point for adapted content description and management and for terminological harmonisation and international standardisation
- In accordance with new combinatory lexicography (Melcuk 1985) and phraseography (Greciano 1984) we have joined related terms and expressions, collocations fixed by user preferences around key terms and their meaning, a ready made and ready to use risk management vocabulary, idiomatically born in each language. More word terms, noun phrases, verb phrases, fixed sentences as speech acts, intervention rules, standardised definitions and instructions that prohibit lexical variation and syntactic transformation and require immediate response without lexicon consulting:

phrasnom :

- ***Intervention<sg,pl> of European civil protection teams,***
- ***national civil protection and disaster relief office<sg,pl>,***
- ***hazard analysis and preventive information unit<sg,pl> ;***

phrasverb **:**

- ***to establish emergency services and a warning system to reduce the impact of disasters,***
- ***to improve the safety of persons, institutions and property,***
- ***to protect people, their goods and environment;***

phrases:

- ***In its zoning plan, the Risk Prevention Plan (RPP) establishes uniform areas to which it applies appropriate prevention and protection measures.***
- ***Special action plans relating to specific hazards lay down the tasks of the various public services and the measures to be taken around installations exposed to hazards.***
- ***The prefect issues the order.***
- ***Stakeholders hold power in civil society.***

These patterns with their multilingual concordances are pre-defined, semi-structured sentences, particularly pre-destinated for speaking and writing, for discourse and text production. Our aim is their integration into LSP formation, writing and translation and their use for oral emergency help can become another direct concern. Their application for e-mail messages, their conversion into human and automatic speech production, into voice services for appropriate answers to different disaster risk scenarios is a motivating and feasible challenge for an interdisciplinary cooperation between competent communication departments at universities with the necessary technological infrastructure, such as, f.i., the Center for Translation Studies at the University of Vienna and already functioning emergency platforms, as f.i. the Centre de Communications du Gouvernement in Luxembourg.

3. The benefits of linguistic standpoints

Risk communication improves thanks to theories, methods and applications of sciences of language. The semantic and pragmatic standpoints chosen are not system orientated, but use- and action-based and therefore disaster risk management takes the advantage of this type of linguistic approach of risk terminology. Terms and expressions in use and to use are extracted out of authentic risk texts and risk discourses. The balance could be kept between the 5 languages thanks to Hartmann's (1994) bi-text model:

- parallel texts : same subject, same function, same tendencies allowed to find text equivalences in several languages . Scientific risk literature is present in all linguistic communities concerned and the integration of new scientific results, f.i. Turkish; would be a real advance;
- paired texts : in absence of parallel texts, couples of texts created by professional translation reveal the concordances. From this point of view, legal risk texts, especially of the EU are an interesting source to detect resemblances and dissemblances and to manage concordances. .

Their minimal grammar avoids misunderstandings and facilitates correct communication and so do the fixed expressions ready to reemploy in disaster and risk situations.

If multilinguality for terms can be seen as a currently expected result, **multilingual definitions** are absolutely new in the risk terminography. Absent in nearly all term lists, they appear exceptionally in TESEC 2001 standardised, and in ISDR completed with rare comments, both monolingual English. Via definitions, the semantic analyses, interested in content, focuses on distinctive features of terms, ex. ***risk*** defined as « probability / uncertainty of a disaster » which opens the way for « avoidance of a disaster », ***precaution, prevention*** and gives a chance to ***protection, safety*** and the today unavoidable ***acceptable risk.*** Multilinguality expressing multiculturality, the respect of variety, subsiduarity and even difference, as far as the so complex risk notions are concerned, is fundamental. Diversity might be the warrant of technical evolution and scientific progress. This consideration explains that 350 referenced definitions complete the 220 terms and invite to further analyses, comparisons and explanations in order to avoid grave errors in risk-comprehension and -communication.

The theories of pragmatics convinced linguists of the efficiency of authentic corpora, of using genuine idiosyncratic language in order to improve communication by the speakers' use. Linguists are far from being surprised that specialists of law (e.g. USA national transportation safety board) and physics (Rubise, Gautier 1995, 39 and 81) attribute accidents and major hazard*s* to communication problems, f.i.,

- The great fire of the ferry 'Scandinavian Star' in 1990: language difference between mechanics, board officers and passengers was made responsible for the tragic event;
- The Boeing crash in Tenerife was attributed to the confusion, if not mistranslation, of instructions: « *vous pouvez vous aligner* » was misunderstood as « *vous pouvez décoller* » and thus caused the passengers' death.

Fixed expressions and phrases being the most efficient contribution to fluent communication, the pragmatic approach, interested in action analysis opens eyes and ears for speech acts in risk emergency situations, standardized in each culture, so that international harmonization becomes a necessary priority. Pragma-semantics identifying the participating entities of states, processes and actions, represent disaster as object, safety as objective, catastrophe as evaluation and protection as obligation and desire.

To sum up, it has become evident that linguistic and domain-specific semantic and pragmatic knowledge and discourse structures are the theoretical and

methodological basis for building mono- and multi-lingual glossaries and databases and for using and teaching them in domain-specific discourse situations. The area of risk needs such a solid, trans-disciplinary basis in order to be successful in communication, due to the many challenges we are facing in real-time risk situations. Much more work still needs to be done, especially in Language of special purpose (LSP) teaching at high schools and universities, to close the gap between the technological needs in multi-risk, real-time, multi-lingual, and multi-site situations that require immediate, reliable, and unambiguous communication in order to save lives, reduce damage to property and persons, and to motive society and decision makers to take the necessary measures to avoid future risks. This will only be possible in new risk governance with a comprehensive and cooperative risk communication strategy based on solid pragma-semantic methods.

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