WHO-FAMILY OF INTERNATIONAL CLASSIFICATIONS NETWORK MEETING 2005

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Supporting WHO Classifications with GALEN tools

P2-4

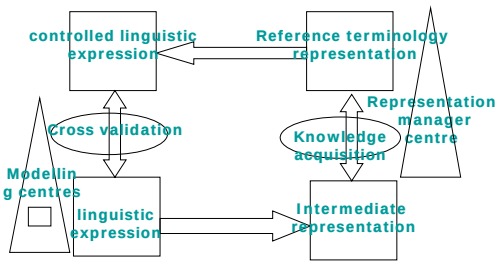
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Introduction

A move to an collaborative development process for biomedical Terminologies and Ontologies.
GALEN (Generalised Architecture for Languages, Encyclopaedias and Nomenclatures in Medicine)
ICHI (International Classification of Health Interventions)

Relation between modelling centres and representation manager centre



OBJECTIVES

- Demonstrate that a compositional approach to developing WHO terminologies is feasible and cost effective
- Demonstrate a more collaborative approach to building international terminologies, including some open developments
- Demonstrate that automatic translations based on an ontology make the translation process more transparent and better quality assured
- Provide a report on technical feasibility and costs to inform future decision making
- Scope requirements for any later move towards new standards and Web style working.

Rationale

"Better, Faster, Cheaper"

Better: More scalable and flexible, extensible poly-hierarchies and reorganisation
More transparent and better quality assured sub-setting, testing

Faster: More responsive to updates; translation, responding to new materials linking, and indexing

Cheaper: Less total effort; fewer committee meetings, faster indexing and production, more input from community

Methods & Materials

Material: ICHI Initial rubrics
Method: Step 1
Semi formal representation by
University of Saint Etienne (France)
Radboud University Nijmegen (The Netherlands)
Ex: Initial rubric ICHI –chapterXV,1381 *Immobilisation of fracture or dislocation of spine*
Intermediate dissection
MAIN immobilising
ACTS_ON spine
BY_MEANS_OF device
MOTIVATED_OVERALL_BY curing
ACTS_ON dislocation
HAS_LOCATION spine
OTHER_THAN reducing (a dislocation)
ACTS_ON spine
HAS_APPROACH closed

Step 2: Conformity to European Standards EN 1828 and EN 12264

1st rule : a deed and a direct object
2nd rule : the presence of anatomy descriptors
3rd rule : checking the usefulness of the pathology

Step 3: Mapping to GRAIL language GALEN formal representation
University of Manchester (UK)
SurgicalDeed]-(isMainlyCharacterisedBy)->[performance]-(isEnactmentOf)->[[Immobilizing]-*et……*

Step 4: Natural Language Processing generation to English, Portuguese and French languages
University Hospitals of Geneva (Switzerland)
University of Freiburg (Germany)

ICHI-Chapter XV, 1381 Immobilisation of fracture or dislocation of spine

English : Immobilizing of the spine, for treatment of a dislocation lesion of the spine, without closed reduction...

Portuguese : Imobilização da coluna vertebral, para tratamento de uma luxaçaõ da coluna vertebral, sem redução fechada ...

French : Immobilisation de la colonne vertébrale, pour traitement d'une luxation de la colonne vertébrale, sans réduction fermée ...

Results

QA Inconsistent Usage
1) initial rubric: ICHI-Chapter XV,1518 Arthroplasty of knee
generated label:
En: Repairing of the knee joint
Po: Reparação da articulacâo do joelho
Fr: Réparation de l'articulation du genou
2) initial rubric 1519: Arthroplasty of knee with bone graft to femur or tibia
generated label:
En: Replacement of the knee joint with a prosthesis of the knee joint, with installation of bone graft tissue in the femur or the tibia by means of harvesting bone
Po: Substituicão da articulacâo do joelho cum una prótese da articulacâo do joelho, cum instalacão de transplante de tecido de osso no fémur ou na tíbia por meio de colhida /colheita do osso'.
Fr: Remplacement de l'articulation du genou par une prothèse de l'articulation du genou avec mise en place de tissu osseux greffé sur le fémur ou le tibia au moyen de prélèvement osseux
3) initial rubric: ICHI-Chapter XV,1589 Arthroplasty of hip joint
generated label:
En :Repairing of the hip joint .
Po: Reparação da articulacâo do quadril/anca .
Fr: Réparation de l'articulation de la hanche.

Conclusions

—There is a need to do a distinction between biomedical terminologies artefacts and an ontology.

— Without ontology driven tools the terminological artefacts are transmitting 20 % of errors, inconsistencies and ambiguities.

— Open source tools are essential to support the broad diffusion of ontology driven instruments for biomedical terminologies developments.

—The method and the tools must be used for future developments in biomedical terminologies and EHR to support a convergence between the different types of terminologies (e.g : WHO-FIC, Galen, FMA, ISO, CEN standards, Snomed-CT et.).