

**SNOMED**  
International

Expo 2018 Tutorial

# Introduction to SNOMED CT Translation

*Feikje Hielkema, Maria-Cornelia Wermuth,  
Ian Green and Anne Randorff Højen*

• INFEKTIÖS LUNGSJUKDOM  
14669001  
• ACUTE RENAL FAILURE  
• SÍNDROME DE INSUFICIENCIA RENAL  
• NYRESVIGTSYNDROM



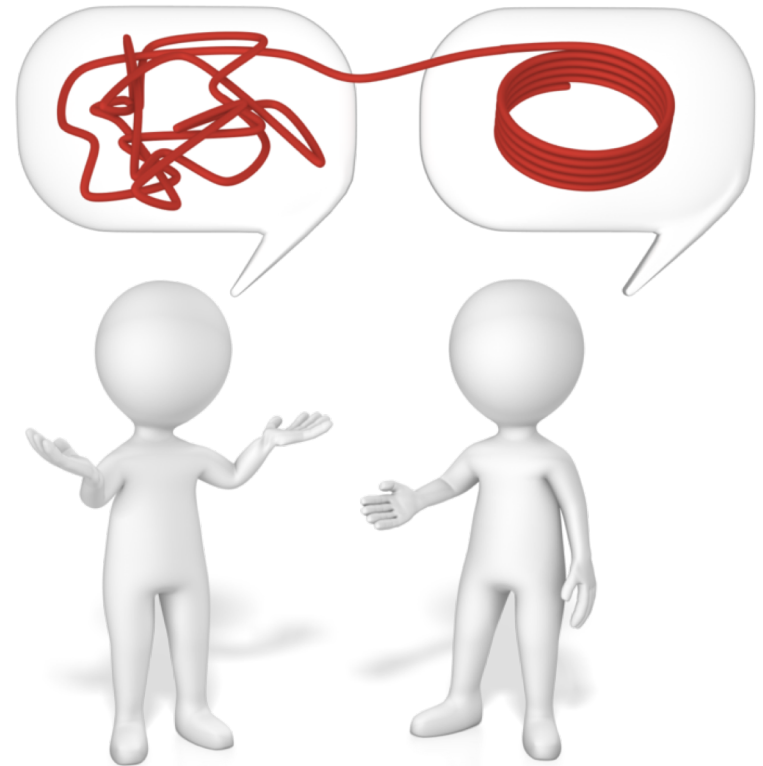
# Overview

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- Introduction to translation
- SNOMED International translation initiatives and support
- Translation approaches
- Translation efficiency
- Q/A and ending



# Introduction to Translation

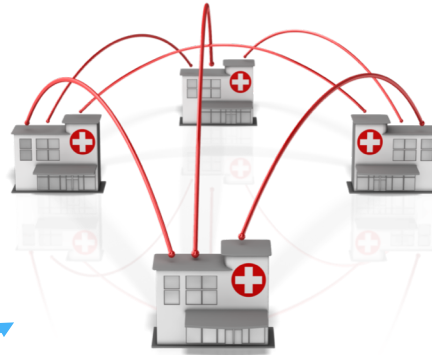


# Why Translate SNOMED CT?

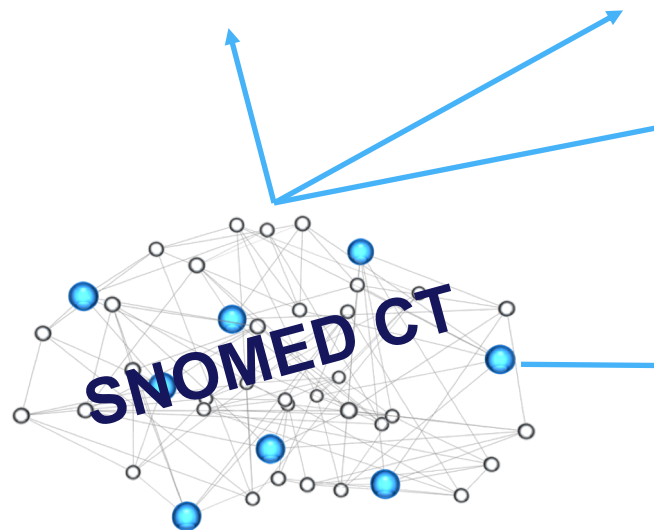
People



Organisations



Countries



Translations must remain faithful to terminological and linguistic principles and at the same time be able to produce national terminologies useful for clinicians in their daily work

# SNOMED CT Translation Heuristics

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Unambiguity (FSN)

Transparency

Psychological  
acceptability

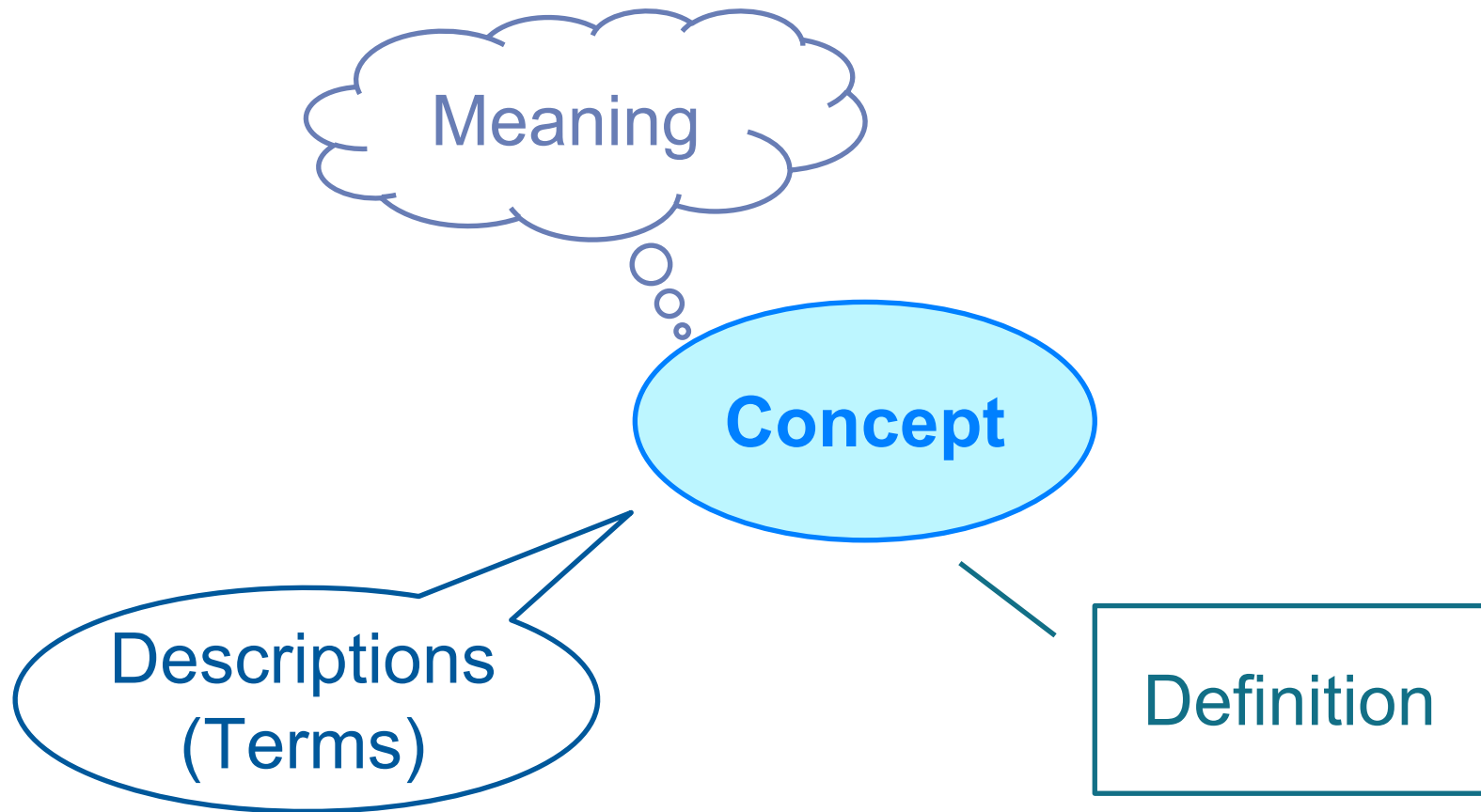


Systematicity and  
consistency

Linguistic correctness

# Concept-Based Translation

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# Concept and Terms

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## Concept

- SNOMED CT concepts represent clinical ideas/meanings
- Every concept has a unique numeric concept identifier

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## Term

- Terms are human-readable representations of concepts
  - A single term may represent one or more concepts
  - Different terms may represent a single concept

# Concept and Terms

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## Concept:

22298006

| Myocardial  
infarction (disorder) |

---



- “Myocardial infarction”
- “Infarction of heart”
- “Cardiac infarction”
- “Heart attack”



- Cold sensation quality
- Chronic Obstructive Lung Disease
- Common cold

## Term:

”cold”





# Translating Concepts instead of Terms

- Concept equivalence is essential
- Concept translation requires clarifying the underlying meaning of the concept by considering the
  - meaning of the source language term
  - hierarchical position of the concept
  - relationships of the concept to other concepts

Original term	Actual translation	Correct translation
Sore bottom	Øm <b>bund</b>	Ømt sædeparti

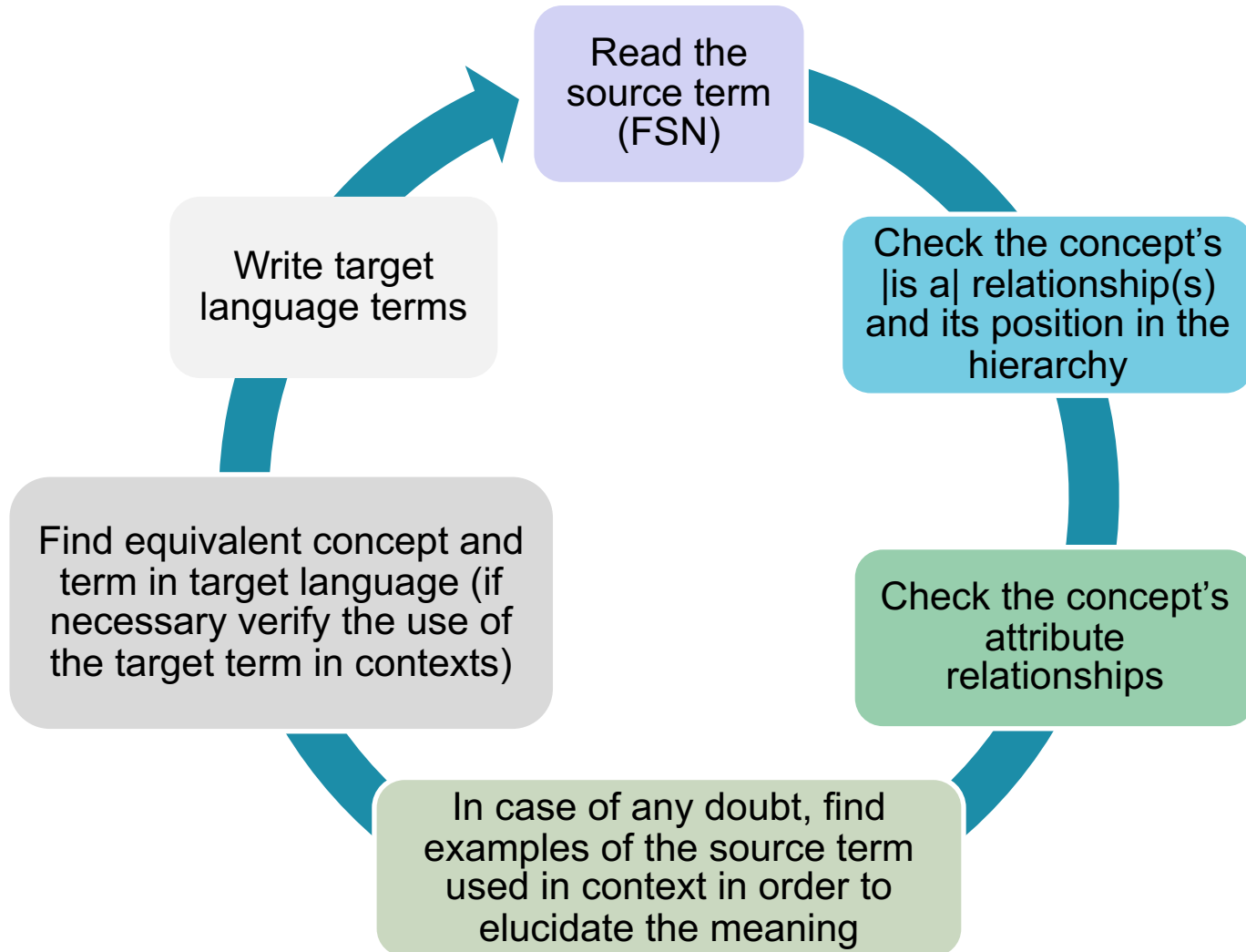


The lowest or deepest part of anything, as distinguished from the top

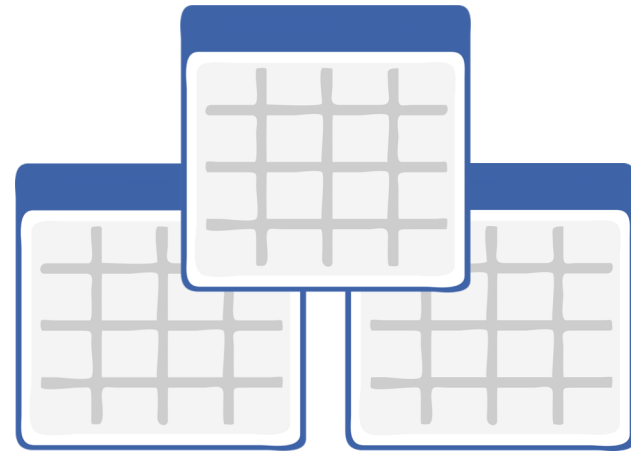


# Process

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# Representing Translations



# Descriptions and Language Reference Set

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## Concept File



Is used to hold the clinical concepts that make up SNOMED CT

## Description File



Is used to represent the association between human-readable phrases (terms) and SNOMED CT concepts

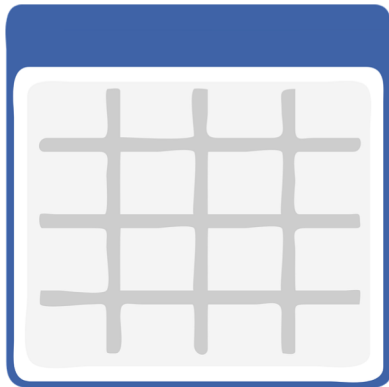
## Language Reference Set



Is used to indicate which descriptions contain terms that are acceptable or preferred in a particular dialect or use case

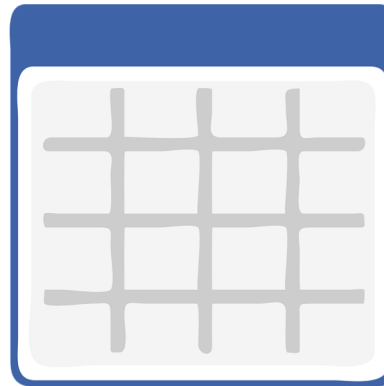
# Descriptions and Language Reference Set

## Concept File



...	22298006
...	...

## Description File



<b>S</b>	37436014   Myocardial infarction
<b>S</b>	37442013   Cardiac infarction
<b>S</b>	37443015   Heart attack
<b>S</b>	37441018   Infarction of heart
<b>F</b>	751689013   Myocardial infarction (disorder)

## Language Reference Set

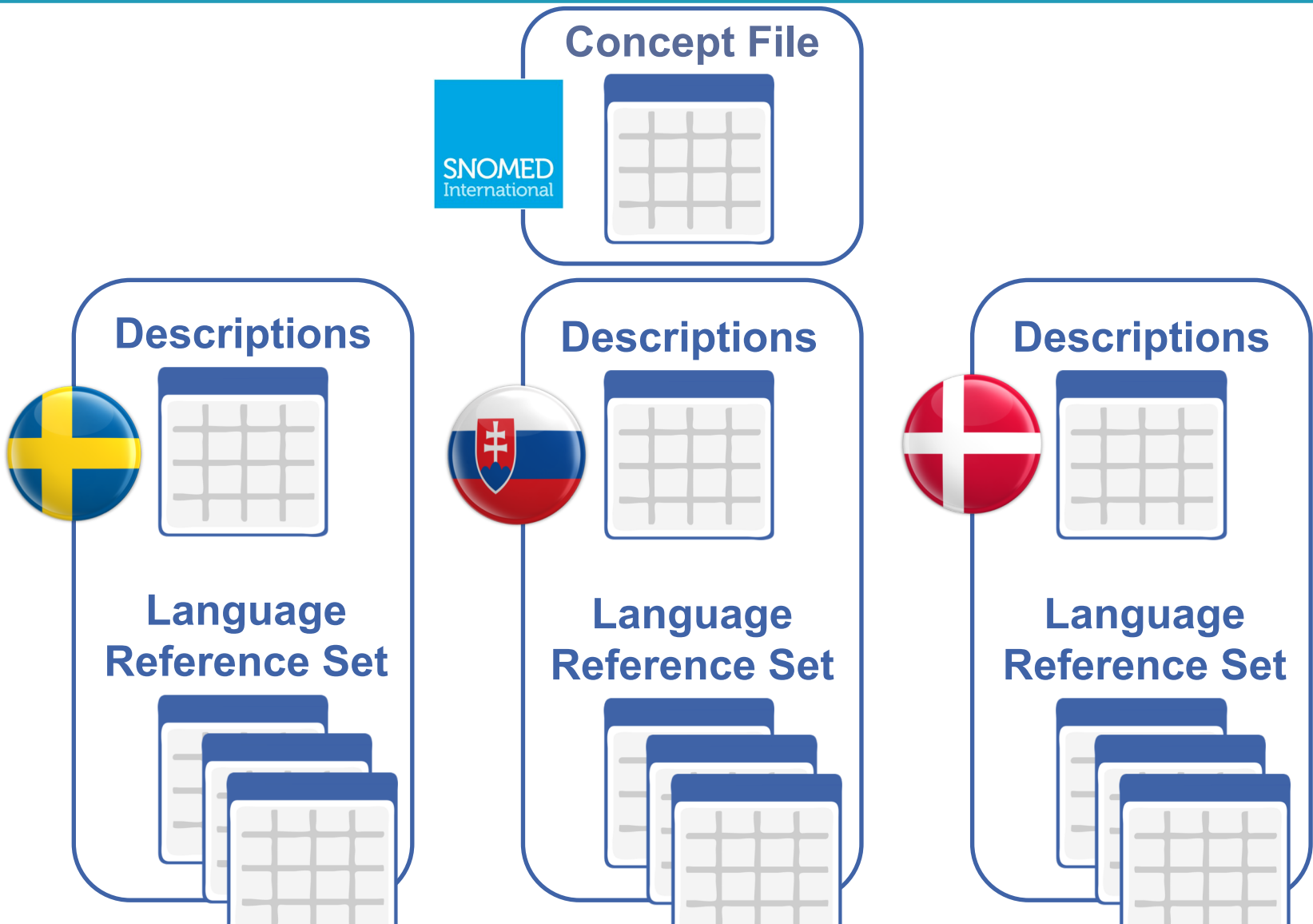


<b>★</b>	37436014
<b>✓</b>	37442013
<b>✓</b>	37443015
<b>✓</b>	37441018
<b>★</b>	751689013

**S** Synonym      **F** Fully Specified Name

**✓** Acceptable      **★** Preferred

# Descriptions and Language Reference Set



# **SNOMED International Translation Initiatives and Support**



# Translation Initiatives and Support

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- Translation is responsibility of Members, SNOMED International does not undertake translation
- SNOMED International is committed to supporting Members with translation activities, via:
  - Translation policy
    - Incentivizing new and existing members to undertake translation by providing some financial support
  - Publication of translation guidance documentation and resources, developed by the Member community
  - Encourage discussion between Members on translation issues
    - to assist in developing a greater understanding of the management of translations at a national level, and the process of translation



# Translation Policy

## Policy Assumptions

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- IHTSDO will not assume managerial responsibility for any translations other than the existing Spanish translation
- The IP of any derivative work belongs to IHTSDO
- The IP of any translated work belongs to IHTSDO and is to be shared with all Members
- IHTSDO encourages collaboration and will work to make national translation available to all Members
- Minimum core set should be translated for adoption purposes in non-English speaking Member countries



# Translation Policy

## Financial Support

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### SNOMED International will cover:

- 100% of a reasonable Member cost for the translation of up to 5,000 concepts in the Member's language
- the cost of translation of one implementation document per Member
- the cost of translation of one of the SNOMED CT courses as chosen by the Member
- Funding support is up to \$150,000



# Translation User Group

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- Forum to
  - share expertise
  - identify best practice
  - provide advice and guidance for all activities related to translation
- Led by Members and supported by SNOMED International
- Aim to promote and support the use of SNOMED CT in non-English speaking countries globally
- Confluence based discussion forum –
  - <https://confluence.ihtsdotools.org/display/TRANSLATIONUSERGROUP/Translation+User+Group+Home>
  - Confluence site is open to all viewers, but requires a Confluence account to partake in discussions

# SNOMED International Resources

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- Translation Guidance documentation
  - Guidelines for the Translation of SNOMED CT
  - Guidelines for the Management of Translations of SNOMED CT
  - Developing a Methodology and Toolkit for Evaluating SCT Translation Quality (Background)
  - Developing a Methodology and Toolkit for Evaluating SCT Translation Quality
- Translations Confluence site
  - <https://confluence.ihtsdotools.org/display/TRAN/Translations+Home>
- Initial Translation Set – French, German, Chinese and Japanese
  - 6,000 terms based on usage
    - NOT a SNOMED CT Starter set



# Translation (for more information)

## Translations Home

Created by Juliet Gole Krarup, last modified by Ian Green on 2017-Sep-19

### Welcome to the Translations space!

Here you can find information about translations of IHTSDO products, including SNOMED CT and its derivatives and product support documentation.

The global dissemination of SNOMED CT® increases the need to provide the terminology in many different languages. SNOMED CT® has a built-in framework to manage different languages and dialects. Currently, entire or partial translations of SNOMED CT® are available in US English, UK English, UK Australian, Spanish, Danish, Dutch, Lithuanian, Swedish and Canadian French, translations in other SNOMED International Member countries and elsewhere are also in progress.



### INFORMATION



[Introduction to translation](#)

[Guidelines for Translation of SCT](#)

[Guidelines for the Management of Translations of SCT](#)

[Developing a Methodology and Toolkit for Evaluating SCT Translation Quality \(Background\)](#)

[Developing a Methodology and Toolkit for Evaluating SCT Translation Quality](#)

### SUPPORTING MATERIALS



[SNOMED International Translation Policy](#)

[Refset/Translation tool](#)

[IHTSDO Quality Assurance Framework](#)

[Automated translation](#)

[Useful articles](#)

### RESOURCES



[Initial Translation sets](#)

[Member translations](#)

[Third party translation artefacts](#)

[ICD-11 Translation](#)

# Translation Activities

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- Translation activities of members focused on SNOMED CT content and documentation
- Most important document to translate is the SNOMED CT Starter Guide
  - Supports community engagement and national/local discussions
  - Number of translations already completed
- Foundation Course
  - Spanish translation, and support provided to the course in Spanish, available online
- Good practice
  - French speaking Members and SNOMED CT Users have developed a focused group looking at French translation issues

# Translation Approaches

*Experiences from the Netherlands*



# Translation approaches

Feikje Hielkema-Raadsveld  
October 18th, 2018







# Content

## **Different translation approaches:**

- Use-case driven
- Large-scale translation
- Pragmatic approach



# Use-case driven translation

Omschrijving	SNOMED-CT FSN	Id
'blow out'-orbitafractuur	'blow out'-orbitafractuur (aandoening)	<a href="#">263167007</a>
'bull's eye'-maculopathie	'bull's eye'-maculopathie (aandoening)	<a href="#">232050001</a>
'floppy eyelid'-syndroom	'floppy eyelid'-syndroom (aandoening)	<a href="#">231812008</a>
'paving stone'-retinadegeneratie	'paving stone'-retinadegeneratie (aandoening)	<a href="#">69134001</a>
'snail track'-retinadegeneratie	'snail track'-retinadegeneratie (aandoening)	<a href="#">232001007</a>
A-patroonvergentie	A-patroonvergentie (bevinding)	<a href="#">246695005</a>
aandachtstekortstoornis met hyperactiviteit, overwegend onoplettend type	aandachtstekortstoornis met hyperactiviteit, overwegend onoplettend type (aandoening)	<a href="#">35253001</a>
aandoening van benige orbita	aandoening van benige orbita (aandoening)	<a href="#">371522000</a>
aandoening van choroidea	aandoening van choroidea (aandoening)	<a href="#">128468007</a>
aandoening van conjunctiva	aandoening van conjunctiva (aandoening)	<a href="#">59698003</a>
aandoening van cornea	aandoening van cornea (aandoening)	<a href="#">15250008</a>
aandoening van corpus ciliare	aandoening van corpus ciliare (aandoening)	<a href="#">68575007</a>
aandoening van corpus vitreum	aandoening van corpus vitreum (aandoening)	<a href="#">76682005</a>
aandoening van discus nervi optici	aandoening van discus nervi optici (aandoening)	<a href="#">128331005</a>
aandoening van episclera	aandoening van episclera (aandoening)	<a href="#">421866006</a>
aandoening van filterblaas	aandoening van filterblaas (aandoening)	<a href="#">410724009</a>
aandoening van iris	aandoening van iris (aandoening)	<a href="#">85478004</a>
aandoening van lens	aandoening van lens (aandoening)	<a href="#">10810001</a>
aandoening van nervus opticus	aandoening van nervus opticus (aandoening)	<a href="#">77157004</a>
aandoening van ooglid	aandoening van ooglid (aandoening)	<a href="#">60113004</a>
aandoening van oogspier	aandoening van oogspier (aandoening)	<a href="#">128603005</a>
aandoening van pupil	aandoening van pupil (aandoening)	<a href="#">68633000</a>
aandoening van retina	aandoening van retina (aandoening)	<a href="#">29555009</a>
aandoening van sclera	aandoening van sclera (aandoening)	<a href="#">33064008</a>
aandoening van traanapparaat	aandoening van traanapparaat (aandoening)	<a href="#">31053003</a>
aandoening van voorste oogkamer	aandoening van voorste oogkamer (aandoening)	<a href="#">302217008</a>
abrasie van cornea	abrasie van cornea (aandoening)	<a href="#">85848002</a>
accommodatieparese	accommodatieparese (aandoening)	<a href="#">68158006</a>
accommodatiespasme	accommodatiespasme (aandoening)	<a href="#">30069002</a>
accommodatieve esotropie	accommodatieve esotropie (aandoening)	<a href="#">419494007</a>
accommodatieve insufficiëntie	accommodatieve insufficiëntie (aandoening)	<a href="#">232140004</a>



# Use-case driven translation

## **Requires:**

- Early-adopting domain experts
- Semantic reviewer

## **Steps:**

- Determine the type of concept needed and the branch(es) these are in
- Create a simple reference set for your use-case
- Translate the reference set

## **Short-term pro's:**

- Efficient in the short term
- Only translate concepts you recognize
- Adopters already involved

## **Long-term con's:**

- Inefficient in the long term
- Inconsistency



# Use-case driven translation

## **Alternative: mapping a local terminology to Snomed**

- Use local terms as SNOMED CT translations
- Create new SNOMED CT-concepts for any missing terms

### **Pro's:**

- Result is familiar & recognizable
- Translated set is easy to adopt for users of the old, local terminology
- Presumably covers most frequently used terms

### **Con's:**

- Inconsistency
- Not-quite-right translations
- Very time-consuming per concept
- Risk of creating duplicate concepts

**In the long term we have regretted going down this road...**



# Large-scale translation of entire hierarchies

## Requires:

- Professional translators
- Semantic and medical reviewers
- Translation tooling with collaboration support

## Steps:

- Choose your hierarchy, excluding any branches you are guaranteed never to need
- Translate
- Report errors back to Snomed International

## Pro's:

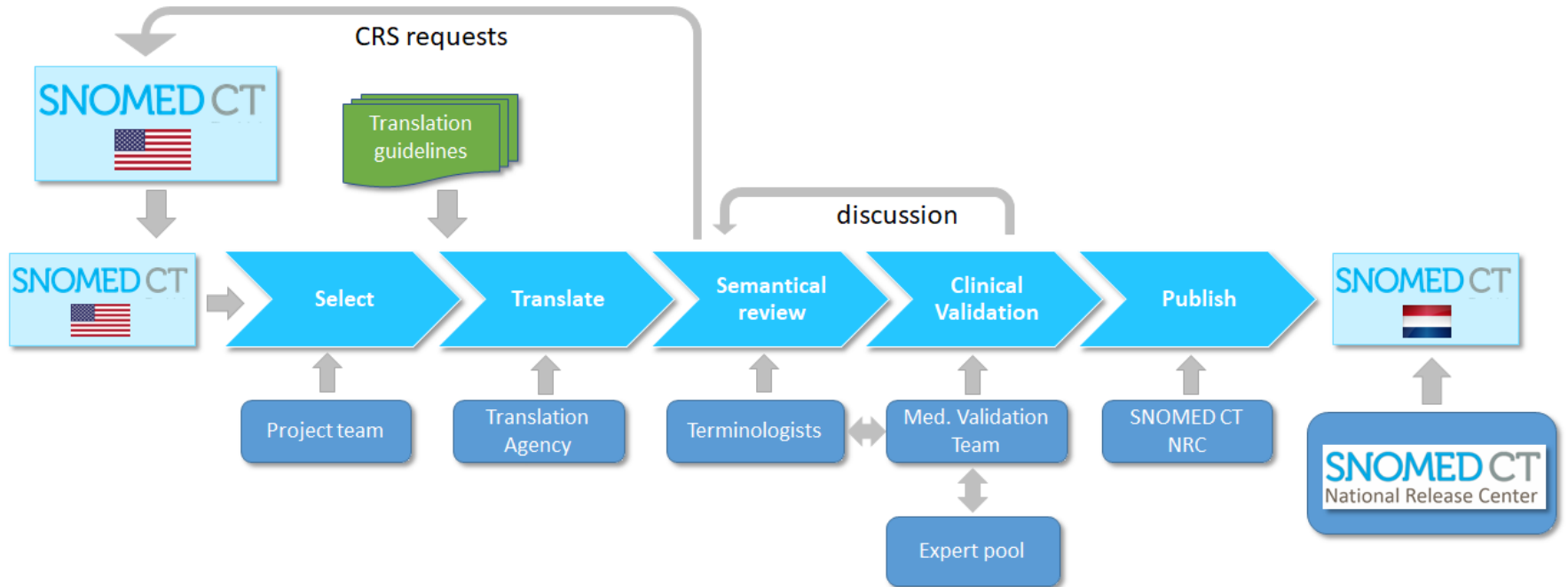
- Efficient *per concept*
- Consistent translations
- Removes a major obstacle for future SNOMED CT adopters

## Con's:

- Very time-consuming due to bulk
- Translate many concepts you will never use
- What if no-one adopts?



# Large-scale translation workflow





# Pragmatic translation: semi-automated

**Optimize the order in which you translate to maximize re-use**

**Requires:**

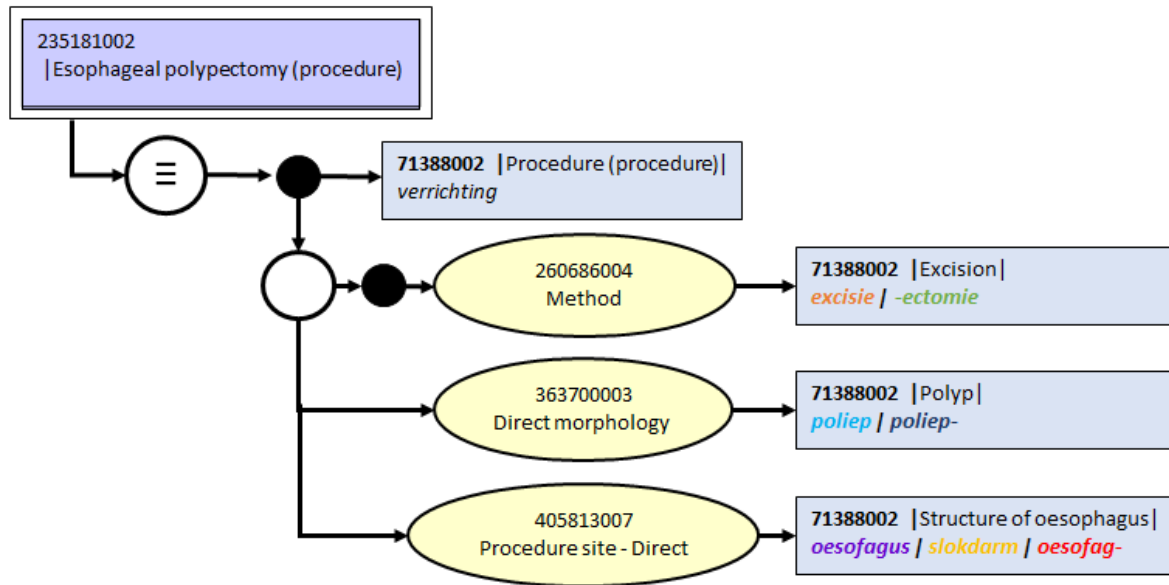
- Semantic and medical reviewers
- Translation of defining concepts (body structures, qualifier values)
- Computer-assisted translation (CAT) algorithm:
  - Generates descriptions in the target language
  - Based on translations of the defining concepts

**Steps:**

- Select a set of well-defined, uncomplicated concepts
- Translate by adopting CAT suggestions, modifying if necessary to increase recognizability
- Report incidental errors to Snomed Int. – caused by incomplete definition
- Fix any structural errors asap by updating the CAT algorithm



# Computer-automated translation generation



excisie van poliep van oesofagus

excisie van poliep van slokdarm

poliepectomie van slokdarm

poliepectomie van oesofagus

For details, come see me at the poster stand





# Pragmatic translation

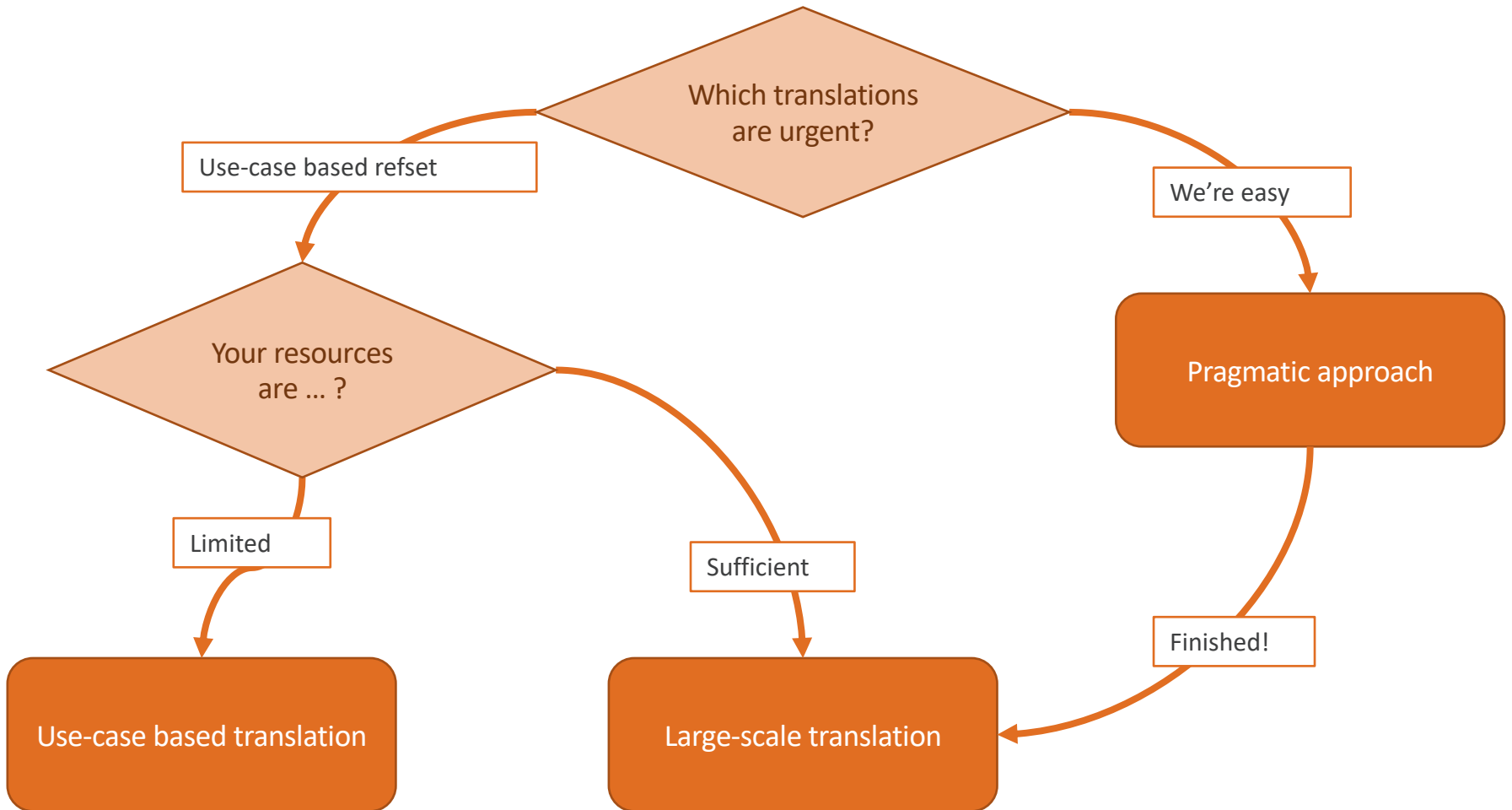
## **Pro's:**

- Most efficient
- Consistent results
- Well-defined concepts are rarely obscure, obsolete, erroneous, veterinary or plain confusing
- Semantic review is trivial

## **Con's:**

- Inadequate for complex concepts
- Result is piecemeal, insufficient for any practical use-case
- Beware of structural errors in the CAT algorithm
- Stilted, less natural translations – medical review is essential
- Requires translating more than just disorders & procedures

# There is no best approach



# Translation Efficiency

*Experiences from Belgium*



# Efficiency in translating SNOMED CT: Approaches, Processes, Tools

Nathalie De Sutter, Language Technology Consultancy  
Katrien Scheerlinck, Federal Public Service (FPS)  
Tom Van Renterghem, Federal Public Service (FPS)  
Dr. Maria-Cornelia Wermuth, KU Leuven - University



**BACKGROUND**



# Belgian extension: First steps in 2016

- Launch of Belgian pilot project:
  - Commissioning of cloud-based translation platform
  - Organization of workshops on concept-based translation and use of cloud platform
  - Creation of first refset *Hospital Core* (approx. 6000 concepts based on Kaiser Permanente)
    - Reason: pre-classification of concepts allows for efficient assignment to appropriate domain specialist



# Belgian extension: BEMARC18

- **BEMARC18:**
  - 26.814 translated international concepts (SNOMED CT® January 2018 International Edition), including:
    - **French and Dutch preferred terms for each concept**
    - **1.945 French synonyms and 1.373 Dutch synonyms**
    - **2 new concepts**
    - **3 concepts specific to the Belgian release:**
      - *Belgian module (core metadata concept)*
      - *French and Dutch language refset (foundation metadata concept)*



# Belgian extension: BESEPT18

- **BESEPT18:**

- Extension with 9241 translated concepts (French and Dutch)
- Translated concepts belong to the following hierarchies:
  - Disorder
  - Medicinal product
  - Organism
  - Product
  - Substance





# TRANSLATION APPROACH



# Translation approach

- **Main objective:**
  - Optimization of the translation process at the lowest possible cost
    - Concept-based
    - Use-case driven
- } approach

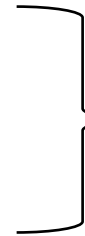


# Translation approach

- **2 Proofs of Concept (PoC):**

- PoC 1 based on:

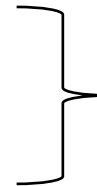
- Crowdsourcing techniques
- Kaiser Permanente
- XTM Cloud



usage-based  
approach

- PoC 2 based on:

- NLP
- Recombination techniques



pragmatic  
approach



# Translation approach

- **Reasons:**
  - Low budget
  - No internal resources
  - Outsourcing to translation agency still requires validation by domain experts



# TOOLS



# PoC1: Requirements

- **Need for a**
  - Web-based
  - Robust
  - Scalable system
- **Offering**
  - Filters to cope with SNOMED-CT specific formats
  - Full traceability of all tasks performed in the system
  - Transparency through extensive reporting
- **Allowing**
  - Multiple users to work at the same time and in an optimal way
  - Adoption of flexible workflow depending on the refset/subset
  - The resulting translations to meet the highest standards



# Online interface

## Automatic notification of new assignment

Outlook Mail

In e-mail en personen zoek...

Mappen

- Postvak IN 23563
- Ongewenste e-m 51
- Concepten 33
- Verzonden items
- Verwijderde item: 90
- Rechten

Categorieën

- Contactpersonen
- Nieuwsbrieven
- Sociale updates

[XTM Cloud] XTM Translation Project: 20160603\_Initial-project2

XTM Cloud  
Vandaag 7:31

Beantwoorden

Dear Medical

Your tasks have been modified.

Please use your user name and password to log on at <https://www.xtm-cloud.com:443/project-manager-gui/login-page.action?client=FOD> to view the tasks.

**Project details:**

Project 20160603\_Initial-project2  
Due date  
Source language English (USA)

**New tasks:**

File	Target language	Step	Bundle	Due date
sct2_Description_Delta-en_INT_20160131.csv	French (Belgium)	Translate 1	1-19.827	-

Regards  
Nathalie De Sutter  
Project Manager

This message was automatically generated  
Please ignore this message, if you are not it  
For more information on XTM, please refer t

Welcome MedicalDoctor, Linguist, FOD Logout

My Inbox Concordance Configuration  
Planned Active Closed

Search: Search Progress: 223 / 782349

**Tasks List**

Project	Nickname	File	Source	Target	Due date	Step	Step type	Role	Segments	Words	Progress
Alternative translations		Source-excel.xlsx	English (USA)	French (Belgium)		Translate 1	Translation	Translator	1 - 15236	12780	
20160603_Initial-project2		sct2_Description_Delta-en_INT_20160131.csv	English (USA)	French (Belgium)		Translate 1	Translation	Translator	All: 1 - 19827	106178	
20160603_Initial-project		sct2_Description_Delta-en_INT_20160131.txt	English (USA)	French (Belgium)		Translate 1	Translation	Translator	All: 1 - 19828	663391	

Showing 1 to 3 of 3 entries  
Show 20 entries



# Fuzzy matching

16	Closed fracture carpal bone	Closed fracture carpal bone	1	U
	ID: 9468002			
	<b>Comment:</b> ⌵			
17	Closed fracture of wrist	Closed fracture of wrist	1	M
	ID: 9468002			
		Fuzzy match 79% - Approved		
	<b>Source:</b> Closed fracture of <del>lunate-bone-of</del> -wrist	fracture fermée de l'os semi-lunaire		✓
	<b>Source:</b> Closed fracture of <del>hamate-bone-of</del> -wrist	fracture fermée de l'os crochu		✓
	Fuzzy match 76% - Approved			
<b>Source:</b> Closed <del>reduction-of</del> -fracture of wrist	réduction fermée de fracture du poignet		✓	
<b>Comment:</b> ⌵				
18	Arucana chicken	Arucana chicken	1	U
	ID: 10643004			
	<b>Comment:</b> ⌵			

The translation of terms with lexical similarities is shown for reference in the interface

→ higher consistency





# Terminology

ID	Terminology	verminderd cognitief vermogen	4	U
94	<b>Impaired</b> cognition ID: 3 Comment: <input type="checkbox"/>			
95	<b>Impaired</b> mobility ID: 82971005 Comment: <input type="checkbox"/>	<b>Translation</b> Last modification by: NathalieADMIN Last modification date: 27-03-2018 09:15 Status: Not approved Acceptability: Preferred	4	U
96	Inattention ID: 22058002 Comment: <input type="checkbox"/>	<b>Source</b> Term: impaired Last modification by: NathalieADMIN Last modification date: 27-03-2018 09:15 Status: Not approved Customer: SNOMED-CT-BE_Nursing Acceptability: Preferred	4	U
97	<b>Incontinence</b> of feces ID: 72042002 Comment: <input type="checkbox"/>		4	U
98	Ineffective <b>infant</b> feeding pattern ID: 129903002		4	U

Frequently occurring words are extracted and recognized within the terms

→ higher consistency



# Communication and online collaboration

33	Viral gastroenteritis due to Norwalk-like agents	entérite infectieuse due au petit virus rond de Norwalk	1 I
	ID: 24789006		
	ICE match - Approved entérite infectieuse due au petit virus rond de Norwalk		✓
Comment: ⌵			
34	AZT	AZT	1 U
	ID: 27479000		
	Comment: ⌵		
35	BRL 2333	BRL 2333	1 N
	ID: 27658006		
	Comment: ⌵		
36	Salivary gland virus disease	Salivary gland	1 U
	ID: 28944009		
	Comment: ⌵		

**Add comment** ✕

According to me this is not a correct translation proposal

Save Cancel

- Possibility to add comments, e.g. on ambiguous meaning or translations of which one is not sure.
- "Processing status" of each individual concept is indicated by means of a colour code (green, orange, red).



# PoC2: NLP-based - Google

Engels Frans Nederlands Taal herkennen ▾



Nederlands Engels Latijn ▾

Vertaal

Family Acanthamoebidae



22/5000

familia Acanthamoebidae



Engels Frans Nederlands Taal herkennen ▾



Nederlands Engels Latijn ▾

Vertaal

Acetoanaerobium noterae



23/5000

Acetoanaerobium noterae



# Additional tools: Machine Translation

The screenshot shows the SNOMED LEXICON software interface. The main window displays a list of words and their translations. A dialog box titled "Lexicon: forms of translated words" is open, showing a list of translated words for "koude" (cold). The interface includes various input fields, buttons, and a taskbar at the bottom.

**SNOMED LEXICON Fields:**

- SNOM LEX SEQ: 92
- SNOM LEX IDNR: 92
- SNOM LEX LANG: 1
- SNOM LEX WOTYP: 1
- SNOM LEX WOFNCT: 0
- SNOM\_LEX\_GNDR: 0
- SNOM LEX DATEINS: 28 DEC 16 23:57
- SNOM LEX DATEDIT: 28 DEC 16 23:57
- SNOM\_LEX\_LASTL: 3 JAN 17 10:46:00
- Original Word: cold
- Translated Word: koude

**Lexicon: forms of translated words Dialog:**

- SNOM WF SEQ: 55
- SNOM WF IDNR: 55
- SNOM WF LEXREF: 92
- SNOM WF TXT: koude
- SNOM WF TISTIN: 4 JAN 17 22:14:10
- SNOM\_WF\_FORM:
- SNOM\_WF\_PROJ: 0

**Translated Words List:**

#L	SEQ	LEXREF	IDNR	Word
25	39	78	39	chemisch
26	40	78	40	chemische
27	45	85	45	chronische
28	46	85	46	chronische
29	47	86	47	cicatricieel
30	48	86	48	cicatricieële
31	51	88	51	cicatriserend
32	52	88	52	cicatriserende
33	53	91	53	co-occurent
34	54	91	54	co-occurrente
35	55	92	55	koud
36	56	92	56	koude
37	57	99	57	congenitaal
38	58	99	58	congenitale
39	59	105	59	cutaneus
40	60	105	60	cutaneuze
41	61	113	61	bepaald

**Word type:** 1/ Adjective 2/ Substantive 3/ Verb 3a/ Verb (cont. pr.) 3b/ Verb (cont. pa.) 4/ Adverb 5/ Conjunction or Preposition 7/ Prop. name or Possess. pron 21/ Complex expr Gender: masculine Feminine Neuter

**Buttons:** Rebuild list, Upload lexicon from word file, Implement selected translations in word file, All empty adjct. + 2 word forms, Selected words. + 3 word forms, Delete

# Additional tools: Machine Translation

Omnis 7

File Edit Design Commands Tools SNOMED-CT Window Help

7 SNOMED\_TRANSLATION

SEQ 22 CONCID 13172003 IDNR 127 PROJREF 1 DATEINS 6 JAN 17 00:00 DATEDIT 24 JAN 17 11:51 Logout

**SOURCE** Translator: Unknown  
Chronic idiopathic thrombocytopenic purpura

**AUTOMATIC TRANSLATION** 10 JAN 17 20:53:12  
chronische idiopathische thrombocytopenische purpura

**FINAL TRANSLATION** Accept automatic translation Edit Final Translation Translation status MT Done

chronische idiopathische thrombocytopenische purpura

Analysis of terms and translation of words Click to fill in:  TRANSLATION is FINAL OK Next term

CoRef	Orig Words	OO	FO	Translated Words	Actions
127	chronic	1	1	chronische	
127	idiopathic	2	2	idiopathische	1 idiopathisch
127	thrombocytopenic	3	3	trombocytopenische	2 idiopathische
127	purpura	4	4	purpura	

Insert or edit comment on active term. OK Cancel

Update Automatic Translation CLOSED ON... Make more word forms or synonyms

#L	SEQ	IDNR	CONCID	TLPROV	TLFIN	List of terms	DATINS	DATEDIT
15	15	40	83942000	MR/LR	YES	Acute disseminated encephalomy	6 JAN 17 00:00	6 JAN 17 00:00 7 JA
16	16	41	183005	MT	YES	Autoimmune pancytopenia	6 JAN 17 00:00	24 JAN 17 11:49 7 JA
17	17	44	86081009	MT	YES	Herpes gestationis	6 JAN 17 00:00	24 JAN 17 11:50 7 JA
18	18	46	86219005	MR/LR	YES	Uveitis-rheumatoid arthritis s	6 JAN 17 00:00	6 JAN 17 00:00 7 JA
19	19	58	95609003	MR/LR	YES	Neonatal lupus erythematosus	6 JAN 17 00:00	6 JAN 17 00:00 7 JA
20	20	114	11244009	MT	YES	Polyglandular autoimmune syndr	6 JAN 17 00:00	24 JAN 17 11:51 7 JA
21	21	118	22098000	MT	YES	Chronic idiopathic autoimmune	6 JAN 17 00:00	24 JAN 17 11:51 7 JA
22	22	127	13172003	MT	YES	Chronic idiopathic thrombocyto	6 JAN 17 00:00	24 JAN 17 11:51 7 JA
23	23	130	414927004	MR/LR	YES	Ocular myasthenia with strabis	6 JAN 17 00:00	6 JAN 17 00:00 7 JA
24	24	145	428470000	MT	YES	Autoimmune sensorineural heari	6 JAN 17 00:00	24 JAN 17 11:53 7 JA
25	25	148	239946005	MT	YES	Postinfective Henoch-Schönlei	6 JAN 17 00:00	24 JAN 17 11:54 7 JA

Build list Sort on Seq Sort on record IDNR Sort on concept IDNR Sort on orig term Sort on final transl term Sort on transl status Sort on action status Sort on comment Delete active record

Parse active terms Parse all terms in list Autotranslation selected term(s) Autotranslation all terms Michel WALRAVENS 1/14096/73/790 AT\_STATUS=1

11:45 27/03/2018



# Resources

- Translation memories

- validated RefSet specific translation memory
  - ICPN
  - ICPC
- } not for both languages and not 100% reliable in quality

- Reference databases

- ATC (Anatomical Therapeutic Chemical Classification System)
- Legacy (non-validated) translations
- French Starterset
- NICTIZ
- MedDRA
- SAM V2 (“source authentique des médicaments”):
  - Automatic translation of concepts based on SAMv2 reference databank



# THE PEOPLE AND PROCESS



# Multidisciplinary approach

Rationale behind this approach:

“ [...] interdisciplinary collaboration is crucial in terminology work.”  
(Infoterm 2005)



Semantically validated & usage-based translations

Linguistic revision



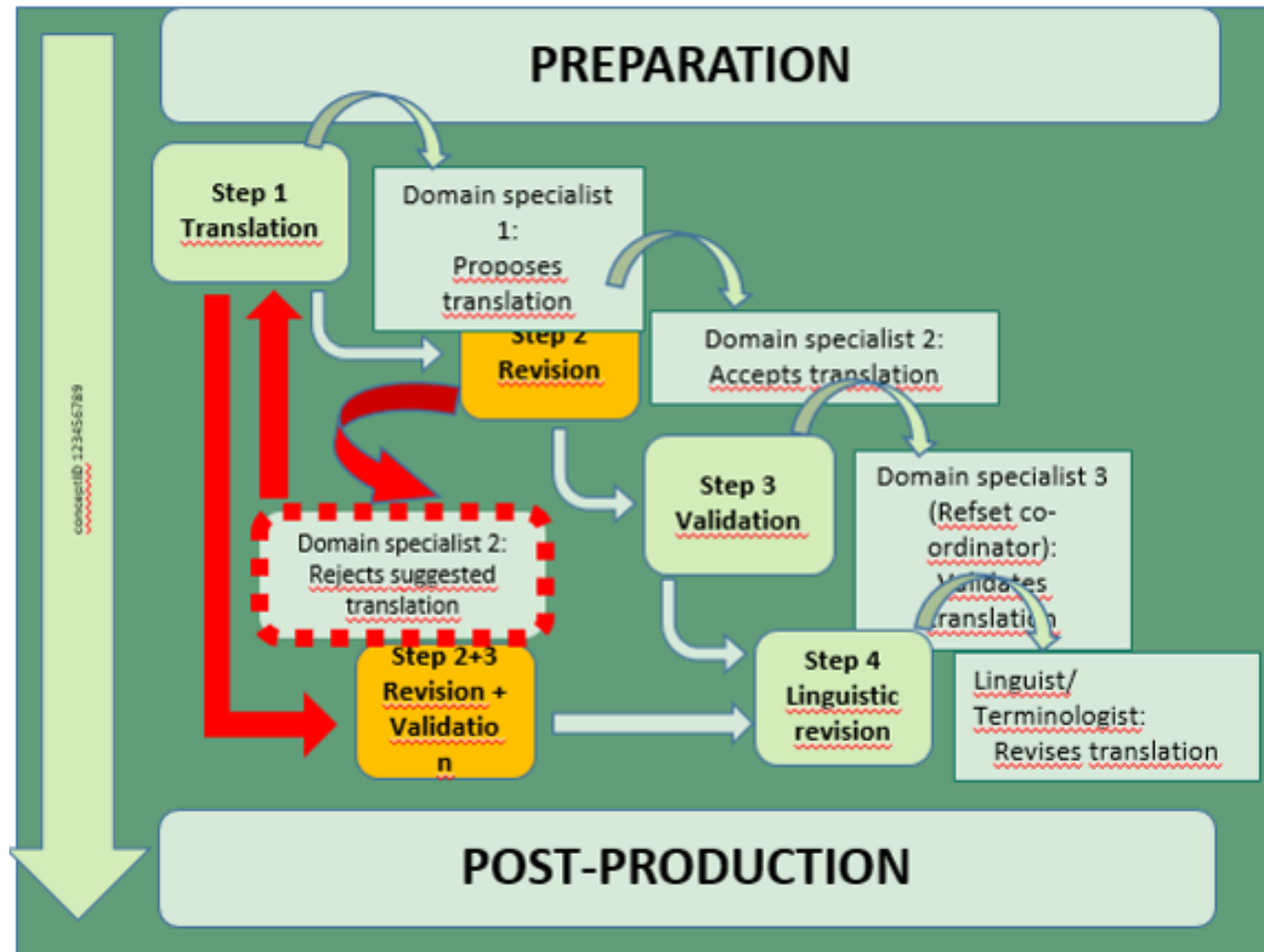


# Multi-step translation process

- **Step 1: Translation**
  - Domain specialist 1: proposes translation
- **Step 2: Revision**
  - Domain specialist 2: reviews proposed translation
- **Step 3: Validation**
  - Domain specialist 3 (Refset co-ordinator): validates translation
- **Step 4: Linguistic revision**
  - Validated terms are checked for linguistic accuracy in accordance with the basic principles of spelling and grammar, punctuation and choice of preferred term versus acceptable synonym as defined in the Belgian guidelines for translation into Dutch and French.
  - This document is constantly being supplemented and also contains specific instructions regarding certain hierarchies.



# Workflow



# Resources for translators

- Guidelines for Translation of SNOMED CT (NRC Belgium):
  - Practical guide for translating SNOMED CT into Dutch (Flemish variant) and French with feedback on:
    - Translation techniques
    - Spelling and grammar
    - Loanwords / bastard words
    - Specific guidelines for certain hierarchies
- Based on:
  - ISO Standards: ISO 704: 2009 and ISO 10241 - 1: 2011
  - Starter guide (SNOMED International)
  - Editorial Guide (SNOMED International)
  - Guidelines for the Management of Translations of SNOMED CT
  - Snomed International Quality Assurance Framework
  - Richtlijnen voor het vertalen van SNOMED CT (Nictiz)
  - Guide des règles éditoriales et terminologiques (Infoway)



# Experienced pros

- Adopters involved from the very beginning
- Efficient approach:
  - Conceptual correctness of terms
  - Acceptability of terms in clinical practice
  - Identification of preferred term and synonyms directly by experts
  - Linguistic correctness is guaranteed by linguists (step 4) → linguistic idiosyncrasies are remedied



# Experienced cons

- Translations based on clinical/personal usage/medical school
- Disagreement on interpretation of English source concept and appropriate translation
- **But:** consensus on difficult issues can be reached through dialogue
  
- No unlimited recourse to voluntary work



# Summary

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- Concept-based translation is essential to ensure a high quality translation
- Members need to share experiences and work together as a community
- Different approaches can be taken to undertake concept-based translations
  - Requirements vs. resources
  - Long-term plan (consistency and reuse)
- Efficient translation processes require
  - Appropriate tools
  - Active participation of domain experts
    - Translators, semantic validators

**Questions?**



# Links to Further Information

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- SNOMED CT Worldwide
  - <http://www.snomed.org/snomed-ct/snomed-ct-worldwide>
- Translations Home
  - Includes Information sheets, supporting materials and resources
  - <https://confluence.ihtsdotools.org/display/TRAN/>