

MOLTO's mission is to develop a set of tools for translating texts between *multiple languages* in *real time* with *high quality*. MOLTO will use multilingual grammars based on semantic interlinguas.

www.molto-project.eu: U Gothenburg, U Helsinki, UPC Barcelona, Ontotext AD, 2010-2013, FP7-ICT-247914.

In the trade-off between **coverage** and **precision**, MOLTO opts for precision. Our tools target the **producers** of information, as opposed to **consumers**. This means greater demands on quality, but fortunately the coverage can be limited. MOLTO builds on the idea of **controlled language**, making it more general and scalable.

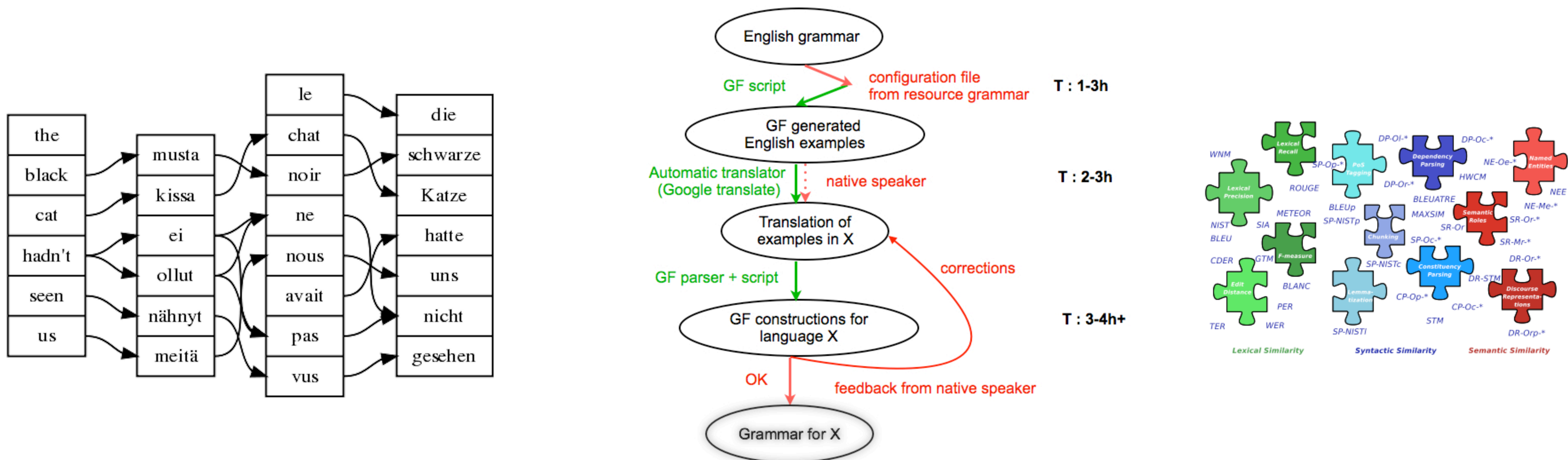
Tool	Consumer	Producer
Quality	browsing	publishing
Input	unpredictable	predictable
Coverage	unlimited	limited

The MOLTO approach is orthogonal to consumer tools like Google Translate.

Google deals with millions of concepts, whereas we aim to scale up from 100's to 1,000's of concepts without losing precision.

Technology: (1) multilingual GF grammars as translation programs (2) domain ontologies as basis of domain interlinguas (3) statistical methods to add robustness and help automate grammar production.

Languages: Bulgarian, Catalan, Danish, Dutch, English, Finnish, French, German, Italian, Norwegian, Polish, Romanian, Russian, Spanish, Swedish.



MOLTO explores several aspects of hybrid GF-SMT methods. We already have:

(1) grammar-based phrase alignments (2) learning grammars from SMT models (3) rich evaluation metrics (IQMT).

Case studies: (1) mathematical exercises (2) patents in pharmaceutical domain (3) museum object descriptions (4) traveller's phrasebook.

Tools produced: (1) translator plug-ins for web pages and for mobile devices (Android) (2) grammar development tools on desktops and in the cloud (3) GF-OWL two-way translation (4) hybrid GF-SMT components.

GF online editor for simple multilingual grammars

Foods

Abstract

English

Swedish

German

Show plain Upload X

concrete

FoodsSwe

of

Foods =

open

SyntaxSwe, ParadigmsSwe

lincat

Comment = Utt

Item = NP

Kind = CN

Quality = AP

Color = AP

lin

Pred item quality = mkUtt (mkCl item quality)

AnyWine = wine

Wine color = mkCN color wine

Fish = mkCN (mkN "fisk")

Fresh = mkAP (mkA "färsk")

This kind = mkNP this_Det kind

That kind = mkNP that_Det kind

Red = mkAP (mkA "röd")

White = mkAP (mkA "vit")

mkC1	<u>NP</u> -> <u>V2</u> -> <u>NP</u> -> <u>CI</u>	she loves him	
mkC1	<u>NP</u> -> <u>V3</u> -> <u>NP</u> -> <u>NP</u> -> <u>CI</u>	she sends it to him	
mkC1	<u>NP</u> -> <u>VV</u> -> <u>VP</u> -> <u>CI</u>	she wants to sleep	
mkC1	<u>NP</u> -> <u>VS</u> -> <u>S</u> -> <u>CI</u>	she says	• API: mkC1 she_NP want_VV (mkVP sleep_V)
mkC1	<u>NP</u> -> <u>VQ</u> -> <u>QS</u> -> <u>CI</u>	she won	• Afr: sy wil slaap
mkC1	<u>NP</u> -> <u>VA</u> -> <u>A</u> -> <u>CI</u>	she becomes	• Bul: mñ ucka dā cnu
mkC1	<u>NP</u> -> <u>VA</u> -> <u>AP</u> -> <u>CI</u>	she becomes	• Cat: ella vol dormir
mkC1	<u>NP</u> -> <u>V2A</u> -> <u>NP</u> -> <u>A</u> -> <u>CI</u>	she paid	• Dan: hun vil sove
mkC1	<u>NP</u> -> <u>V2A</u> -> <u>NP</u> -> <u>AP</u> -> <u>CI</u>	she paid	• Dut: ze wil slapen
mkC1	<u>NP</u> -> <u>V2S</u> -> <u>NP</u> -> <u>S</u> -> <u>CI</u>	she answers	• Eng: she wants to sleep
mkC1	<u>NP</u> -> <u>V2Q</u> -> <u>NP</u> -> <u>QS</u> -> <u>CI</u>	she asks	• Fin: hän tahtoo nukkaa
mkC1	<u>NP</u> -> <u>V2V</u> -> <u>NP</u> -> <u>VP</u> -> <u>CI</u>	she begins	• Fre: elle veut dormir
mkC1	<u>NP</u> -> <u>A</u> -> <u>CI</u>	she is	• Ger: sie will schlafen
mkC1	<u>NP</u> -> <u>A</u> -> <u>NP</u> -> <u>CI</u>	she is	• Ita: lei vuole dormire
mkC1	<u>NP</u> -> <u>A2</u> -> <u>NP</u> -> <u>CI</u>	she is	• Nor: hun vil sove
mkC1	<u>NP</u> -> <u>AP</u> -> <u>CI</u>	she is	• Pnb: او سوتا چاندى اے
mkC1	<u>NP</u> -> <u>NP</u> -> <u>CI</u>	she is the woman	• Pol: ona chce spać
			• Ron: ea vrea să doarmă
			• Rus: ona xovem cnamë
			• Spa: ella quiere dormir
			• Swe: hon vill sova
			• Urd: وہ سوتا چاندى ہے

MOLTO engineering tools already available: (1) grammar IDE in the cloud (2) the Resource Grammar API for 18 languages