



Speech Technologies for Translation and Revision

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Which Speech Technologies?

ASR: Automatic Speech Recognition
(a.k.a. **STT:** Speech-to-Text)

and

TTS: Text-to-Speech



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European Economic and Social Committee (EESC)
Brussels, Belgium
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**International Annual Meeting on
Computer-Assisted Translation and Terminology**
European Commission, Directorate-General for Translation, Luxembourg
13-15 May 2019

**The Shape of Things to Come: How technology and innovation
are transforming the language professions**

AGENDA

Tuesday 14 May 2019

9.00-10.45
Room C

- **Widening the scope of the European Commission's eTranslation Service**, Andreas Eisele, European Commission (DGT)
- **WIPO speech-to-text (& WIPO Translate)**, Michal Ziemski, World Intellectual Property Organization
- **Speech recognition: the challenges and reshapes that lie ahead**, Ayten Dersan, Translation Centre for the Bodies of the EU





Moving beyond the keyboard



Microsoft researchers achieve new conversational speech recognition milestone

August 20, 2017 | Posted by Microsoft Research Blog

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By *Xuedong Huang, Technical Fellow, Microsoft*

Last year, Microsoft's speech and dialog research group [announced](#) a milestone in reaching human parity on the Switchboard conversational speech recognition task, meaning we had created technology that recognized words in a conversation as well as professional human transcribers.

After our transcription system reached the 5.9 percent word error rate that we had measured for humans, other researchers conducted their own study, employing a more involved multi-transcriber process, which yielded a 5.1 human parity word error rate. This was consistent with prior research that showed that humans achieve higher levels of agreement on the precise words spoken as they expend more care and effort. Today, I'm excited to announce that our research team reached that 5.1 percent error rate with our speech recognition system, a new industry milestone, substantially surpassing the accuracy we achieved last year. A [technical report](#) published this weekend documents the details of our system.



Chat

"Hey Cortana, tell me a joke."

Related Items

Research Areas
Human language technologies

Speech and Dialog Research Group

Research in speech recognition, language modeling, language understanding, spoken language systems and dialog systems. Overview Our goal is to fundamentally advance the state-of-the-art in speech and dialog technology. To achieve this, we are working in all aspects of machine learning, neural network modeling, signal processing, and dialog modeling. Recently, to support our work, we have developed the Microsoft Cognitive Toolkit (CNTK, formerly Computational Network Toolkit), which makes it easy to define complex neural network structures,...

The Microsoft 2017 Conversational Speech Recognition System

Wayne Xiong, Lingfeng Wu, Fil Alleva, Jasha Droppo, Xuedong Huang, Andreas Stolcke

August 2017



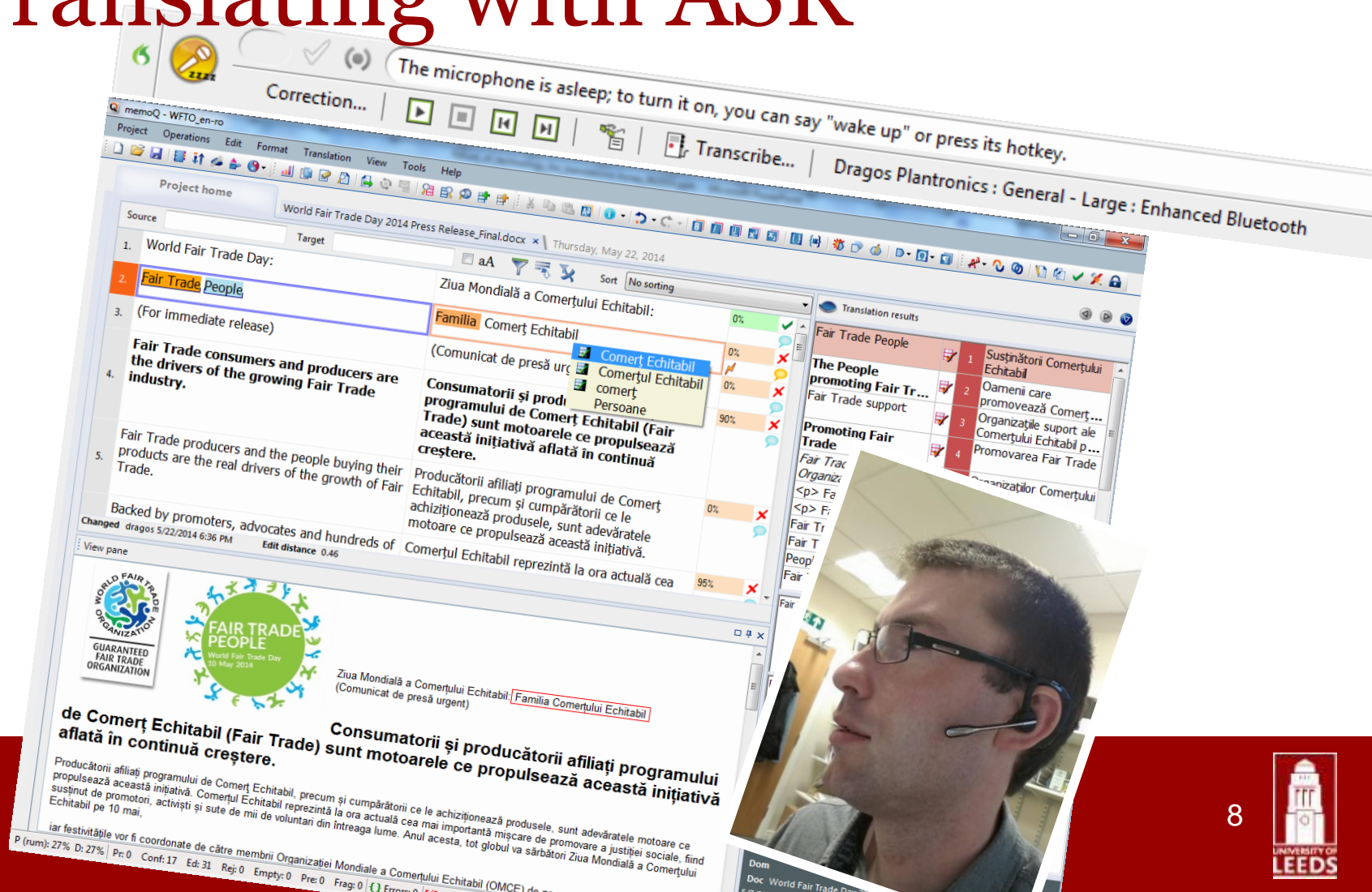


NOT BAD FOR A BOT

Google's voice-generating AI is now indistinguishable from humans



Translating with ASR



The microphone is asleep; to turn it on, you can say "wake up" or press its hotkey.

Correction... | Transcribe... | Dragos Plantronics : General - Large : Enhanced Bluetooth

memoQ - WFTO_en-ro

Project Operations Edit Format Translation View Tools Help

Project home

Source World Fair Trade Day 2014 Press Release_Final.docx Target Thursday, May 22, 2014

1. World Fair Trade Day: Ziua Mondială a Comerțului Echitabil: 0%

2. Fair Trade People Familia Comerț Echitabil 0%

3. (For immediate release) Comunicat de presă urgent Comerț Echitabil 0%

4. Fair Trade consumers and producers are the drivers of the growing Fair Trade industry. Consumatorii și producătorii programului de Comerț Echitabil (Fair Trade) sunt motoarele ce propulsează această inițiativă aflată în continuă creștere. 90%

5. Fair Trade producers and the people buying their products are the real drivers of the growth of Fair Trade. Producătorii afiliați programului de Comerț Echitabil, precum și cumpărătorii ce le achiziționează produsele, sunt adevăratele motoare ce propulsează această inițiativă. 0%

Backed by promoters, advocates and hundreds of Fair Trade support Promoting Fair Trade 95%

Changed dragos 5/22/2014 6:36 PM Edit distance 0.46

View pane

WORLD FAIR TRADE ORGANIZATION GUARANTEED FAIR TRADE ORGANIZATION

FAIR TRADE PEOPLE World Fair Trade Day 10 Mai 2014

Ziua Mondială a Comerțului Echitabil (Comunicat de presă urgent)

de Comerț Echitabil (Fair Trade) sunt motoarele ce propulsează această inițiativă aflată în continuă creștere.


Consumatorii și producătorii afiliați programului de Comerț Echitabil (Fair Trade) sunt motoarele ce propulsează această inițiativă aflată în continuă creștere.

Producătorii afiliați programului de Comerț Echitabil, precum și cumpărătorii ce le achiziționează produsele, sunt adevăratele motoare ce propulsează această inițiativă. Comerț Echitabil reprezintă la ora actuală cea mai importantă mișcare de promovare a justiției sociale, fiind susținut de promotori, activiști și sute de mii de voluntari din întreaga lume. Anul acesta, tot globul va sărbători Ziua Mondială a Comerțului Echitabil pe 10 mai, iar festivitățile vor fi coordonate de către membrii Organizației Mondiale a Comerțului Echitabil (OMCE) de

P (num): 27% D: 27% Pr: 0 Conf: 17 Ed: 31 Ref: 0 Empty: 0 Pre: 0 Frags: 0 Errors: 0

Dom Doc World Fair Trade Day

8



588 respondents

% of respondents who use different translation technologies + most commonly used tools

TM
Translation
memory
65%

1. SDL/Trados 57%
2. memoQ 33%
3. Wordfast 15%
4. Star Transit 6%

SR
Speech
recognition
15%

1. Dragon Naturally-Speaking 84%
2. Others (combined) 11.3%
3. Other Dragon product 5%
4. Siri 3%

MT
Machine
translation
22%

1. Google Translate 70%
2. SDL Language Cloud 31%
3. Microsoft / Bing Translate 19%
4. Transit 12%

QA
Quality
assurance
29%

1. SDL/Trados 18%
2. memoQ 16%
3. MS Word spellcheck 15%
4. Xbench 14%



Of Dragons and Speech Recognition Wizards and Apprentices



Dragoş Ciobanu
Lecturer in Translation Studies
University of Leeds
Centre for Translation Studies

ABSTRACT

Despite being used by a minority of professional translators, Automatic Speech Recognition (ASR) systems have a lot of potential for e-translating workflows. A recent survey designed in the University of Leeds and conducted among professional translators and translators-in-training, the findings regarding, among others, the perception of translation quality and the influence of ASR on the quality of their translated text, the need for fine-tuning of workflows in order to account for the specific requirements of adopting ASR. The survey showed that the advantages of ASR outweigh the disadvantages and that the majority of professional translators are misusing ASR technologies more.

Keywords: Professional Translation, Automatic Speech Recognition, Assisted Translation tools, CAT, translator productivity,



Automatic Speech Recognition in the professional translation process

Author(s): Dragoş Ciobanu ¹

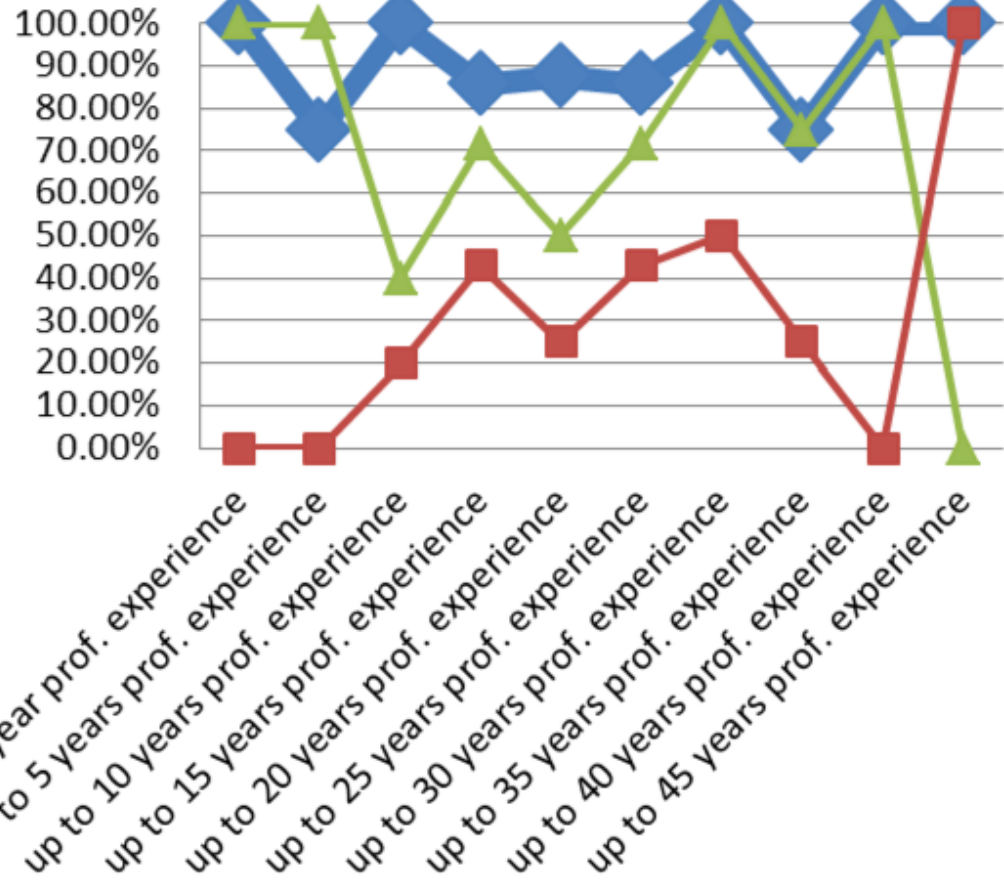
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Source: Translation Spaces, Volume 5, Issue 1, Jan 2016, p. 124 - 144

DOI: <https://doi.org/10.1075/ts.5.1.07cio>

Version of Record published : 14 Oct 2016

Percentage of respondents in each professional experience category



- ◆ I translate more quickly with ASR
- ▲ I only use ASR for first drafts - I post-edit using the keyboard and mouse
- My work with ASR is of higher quality

Figure 7: Impact of ASR on speed, quality and translation workflows

Who said that? 41 translators

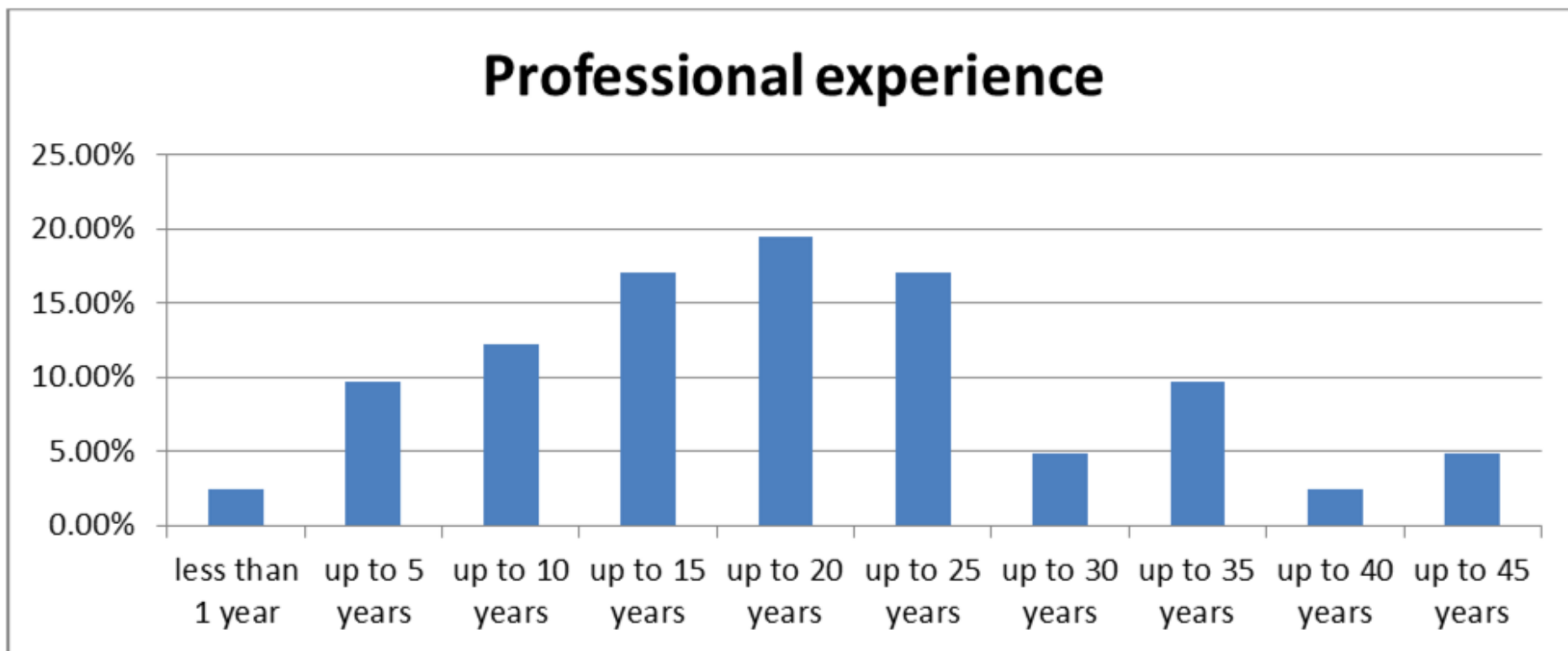


Figure 1: ASR users' professional experience

Ergonomics + Productivity + Quality

- Improved ergonomics
- Strong potential for productivity increase
- For some linguists, dictation helps them generate a more appropriate TT register

OF INTEREST:

- New errors: *Typos* replaced by *Speakos*
- ASR still mostly used for dictation



Why use TTS?

Attention



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Speech Synthesis in the Translation Revision Process: Evidence from Error Analysis, Questionnaire, and Eye-Tracking

by  [Dragoş Ciobanu](#) ^{1,*} ,  [Valentina Ragni](#) ²  and  [Alina Secară](#) ¹ 

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What is revision?

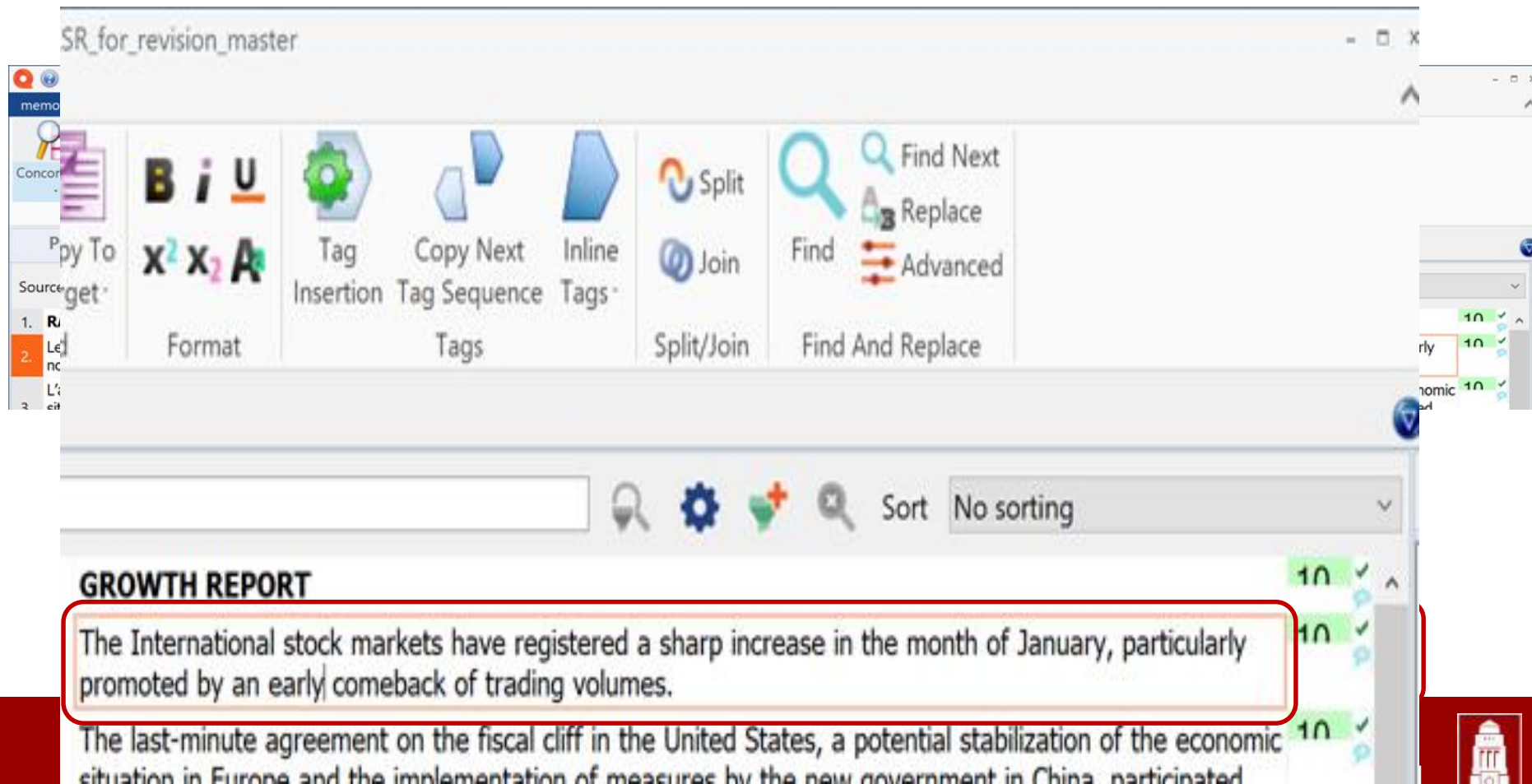
“bilingual examination of target language content against source language content for its suitability for the agreed purpose”

ISO 17100:2015



Name of group	Professionals	Trainees	T0 (training text)	T1 (financial report)
G1_1 (n=6)	3	3	Source sound (SS)	No sound (NoSS)
G1_2 (n=5)	2	3	Source sound (SS)	Source sound (SS)

memoQ + FR (& EN) TTS



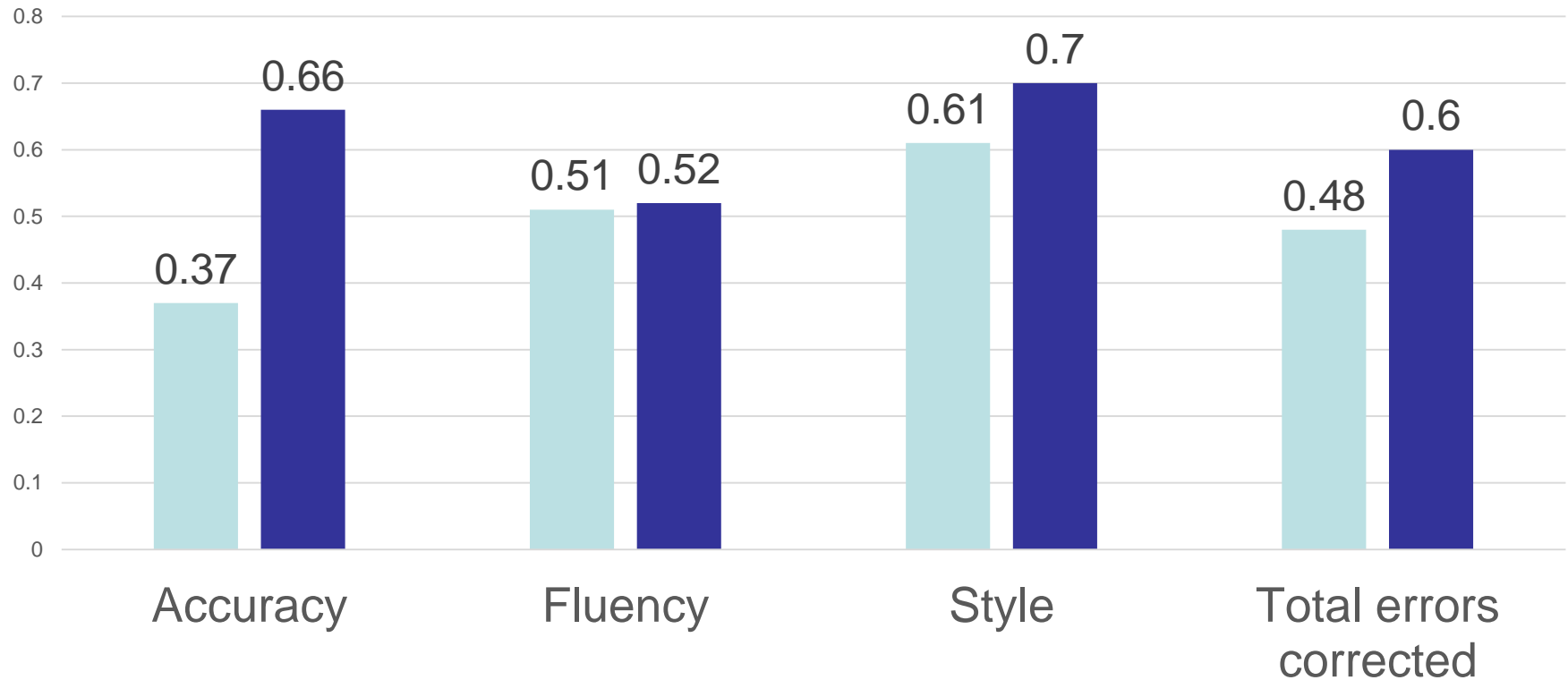
The screenshot shows the memoQ software interface. The window title is "SR_for_revision_master". The main toolbar includes icons for Concorde, Copy To, Source, and various editing functions: Format (B, i, U, x², x₂, A), Tag Insertion, Copy Next Tag Sequence, Inline Tags, Split/Join, Find And Replace (Find, Find Next, Replace, Advanced). Below the toolbar is a search bar and a "Sort" dropdown menu set to "No sorting". The main text area displays a "GROWTH REPORT" section. A red box highlights the following text: "The International stock markets have registered a sharp increase in the month of January, particularly promoted by an early comeback of trading volumes." To the right of the text, there is a list of green checkmarks and numbers (10, 10, 10).



Research Questions

RQ1: Which of the two conditions (with source sound [SS] vs. without source sound [NoSS]) is conducive to spotting and correcting more translation errors in the revision process?

- Method: Error counts
- Type of Analysis: Error correction analysis (based on the TAUS DQF-MQM error typology)



- Revision without source sound
- Revision with source sound



Research Questions

RQ2: What are the participants' views on the integration of text-to-speech in the revision process?

- Method: Questionnaire
- Type of Analysis: Qualitative and quantitative analysis of participant responses

With SS	Concentration	Productivity	Quality
+	3	4	3
-	4	4	0
Neutral	4	3	8

- “having the source text read to me ensured I was more focused on it”; “speech technology made me focus back on the ST”;
- “it allowed me to check that all of the info (and the same logic) was to be found in the target text”;
- “I noticed errors in the translation as a result of hearing the source, it was useful to have these “jump out” at me in this way”;
- “it was very useful for picking up subtle content errors”;
- “checking for typos, proof-listening, if you like”;
- “it was an additional thing to do and slightly disrupted my usual way of approaching a revision”.



Research Questions

RQ3: Is viewing behaviour while revising affected by the presence of source sound [SS]?

- Method: Eye-tracking
- Type of Analysis: Eye movement analysis - fixation counts, dwell time, Mean Fixation Duration (MFD), External Resources (ER) examined

Line No.	Source Text	Target Text	Quality
1	RAPPORT DE GESTION	GROWTH REPORT	101%
2	Le marché européen a enregistré une hausse du cours, notamment par un décalage positif des transactions.	The European stock markets have registered a sharp increase in the month of January, particularly in the second half of trading.	101%
3	L'accord de dernière minute sur la falaise fiscale aux États-Unis, un potentiel de stabilisation de la conjoncture économique en Europe et la mise en place de mesures par le nouveau gouvernement en Chine ont participé à réduire les inquiétudes sur l'économie mondiale.	The last-minute agreement on the fiscal cliff in the United States, a potential stabilization of the economic conjuncture in Europe and the implementation of measures by the new government in China, participated in reducing concerns about the global economy.	101%
4	La FMI a émis son bilan, ajustement ajusté ses prévisions de croissance mondiale à 3,5% pour 2013 et 4,1% pour 2014.	Following the January meeting, the IMF has in turn slightly adjusted its forecasts: 3.5% for 2013 and 4.1% for 2014.	101%
5	Au cours du mois de janvier, le fonds a bénéficié de la bonne performance des segments du luxe et du lifestyle.	The stock was boosted from the performance of the luxury and lifestyle segments in the month of January.	101%
6	Les publications de résultats soulignent une croissance soutenue et une bonne tenue des principales zones géographiques.	The results published emphasize sustained growth and good performance from the main geographic zones.	101%
7	VMH a publié un chiffre d'affaires record à 28 Mds d'euros, en hausse de 19% par rapport à 2012 après l'intégration de Bulgarie; la marque Louis Vuitton a connu une croissance à deux chiffres, et le management de LVMH aborde 2013 avec confiance.	VMH released record turnover of € 28 billion, up 19% compared to 2012 after the merging of Bulgaria, the Louis Vuitton brand has recorded double-digit growth, and the management of LVMH is entering 2013 with confidence.	101%
8	Dans le segment lifestyle, le chiffre d'affaires de Luxottica s'établit à 7 Mds d'euros; la division Wholesale bénéficiant d'une bonne tenue des marchés européens et américains en hausse de 5% et de 13 points de croissance de 13% dans les pays émergents.	In the lifestyle segment, the turnover of Luxottica totalled € 7 billion; the Wholesale division benefiting from a turn of US and European markets which were up 5% and the sharp rise to 13% in emerging countries.	101%
9	Le management réitère sa confiance d'une croissance d'au moins 10% en 2013, étant donné les opportunités dans les pays émergents, le positionnement de ses marques Ray-Ban et Oakley, et la nouvelle licence Giorgio Armani.	Given the opportunities in emerging countries, the positioning of its brands Rayban and Oakley and the new license for Armani, the management reiterates its trust in growth of at least 10% in 2013.	101%
10	Deckers Outdoor a enregistré la meilleure performance ce mois-ci: la société a enregistré une croissance du chiffre d'affaires de 14 de 39% en ligne avec les attentes, la solide croissance du e-commerce et une amélioration des ventes au détail ont permis à la société de réaliser son meilleur résultat en 2012. En gros,	In line with expectations, the robust growth of e-commerce and an improvement in comparative retail sales data compensated for the weakness of wholesale sales. Deckers Outdoor recorded the best profit this month: the corporation recorded a growth in profit of 39%.	101%



Thank you!

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