



Introducing Fairslator: a machine translation bias removal tool

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Our next 15 minutes together...

On-screen demo of Fairslator

[.www.fairslator.com](http://www.fairslator.com)

Motivation for Fairslator

.Bias, ambiguity and all that

Technology behind Fairslator

.Human in the loop

.Rule-based re-inflection

Future plans for Fairslator

Similar work elsewhere

} If time allows



Fairslator

DEMO



Microsoft



Google



DeepL

ENGLISH



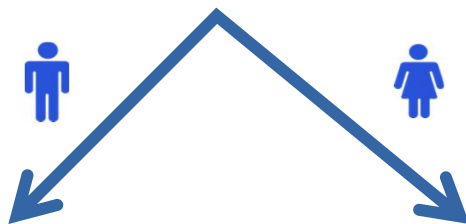
FRENCH GERMAN CZECH IRISH



I can't help you. Where have you been? You are too young. Would you like to go for dinner with me?
Can you drive? What are you doing?

English

I am a good student.



French

Je suis un bon étudiant. Je suis une**e** bonne étudiante**e**.

German

Ich bin ein gute**r** Student. Ich bin eine**e** gute Studentin**in**.

Czech

Já jsem dobr**ý** student. Já jsem dobr**á** studentka**ka**.

Russian

Я хорош**ий** студент. Я хорош**ая** студентка**ка**.



Fairslator

ENGLISH

I am a good student.



FRENCH GERMAN CZECH IRISH



Fairslator

ENGLISH

I am a good student.



FRENCH GERMAN CZECH IRISH



Fairslator

ENGLISH

I am a good student.



FRENCH GERMAN CZECH IRISH



Je suis un bon étudiant.

Who is saying it?

- ☒ a man
- ☐ a woman

Translated by [Google Translate](#), disambiguated by Fairslator.



Fairslator

ENGLISH

I am a good student.



FRENCH GERMAN CZECH IRISH



Je suis un bon étudiant.

Who is saying it?

- ☒ a man
- ☐ a woman



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Fairslator

ENGLISH

I am a good student.



FRENCH GERMAN CZECH IRISH



Je suis une bonne étudiante.

Who is saying it?

- ☐ a man
- ☒ a woman



Translated by [Google Translate](#), disambiguated by Fairslator.



Fairslator

ENGLISH

Is this your bag?



FRENCH

GERMAN

CZECH

IRISH



Ist das Ihre Tasche?

Who are you saying it to?

- ☒ one person
 - ☐ addressed casually as "du"
 - ☒ addressed politely as "Sie"
- ☐ more than one person



Translated by [DeepL](#), disambiguated by Fairslator.



Fairslator

ENGLISH

Is this your bag?



FRENCH GERMAN CZECH IRISH



Ist das deine Tasche?

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Translated by [DeepL](#), disambiguated by Fairslator.



Fairslator

ENGLISH

Is this your bag?



FRENCH GERMAN CZECH IRISH



Ist das eure Tasche?

Who are you saying it to?

- ☐ one person
- ☒ more than one person
 - ☒ addressed casually as "ihr"
 - ☐ addressed politely as "Sie"



Translated by [DeepL](#), disambiguated by Fairslator.



Fairslator

ENGLISH

Where is your director?



FRENCH

GERMAN

CZECH

IRISH



Où est votre directrice ?



Who are you saying it to?

- ☒ one person
 - ☐ addressed casually as "tu"
 - ☒ addressed politely as "vous"
- ☐ more than one person

Who is the director?

- ☐ a man
- ☒ a woman



Translated by [DeepL](#), disambiguated by Fairslator.



Fairslator

ENGLISH

All visitors must register.



FRENCH GERMAN CZECH IRISH



Alle Besucher:innen müssen sich anmelden.

Who are the visitors?

- ☐ a group of men
- ☐ a group of women
- ☒ mixed or unknown gender
 - ☐ use male default
 - ☒ use gender-neutral notation





Fairslator

DEMO



Microsoft



Google



DeepL

ENGLISH



FRENCH GERMAN CZECH IRISH



I can't help you. Where have you been? You are too young. Would you like to go for dinner with me?
Can you drive? What are you doing?

Machine translation bias

A side effect of machine learning

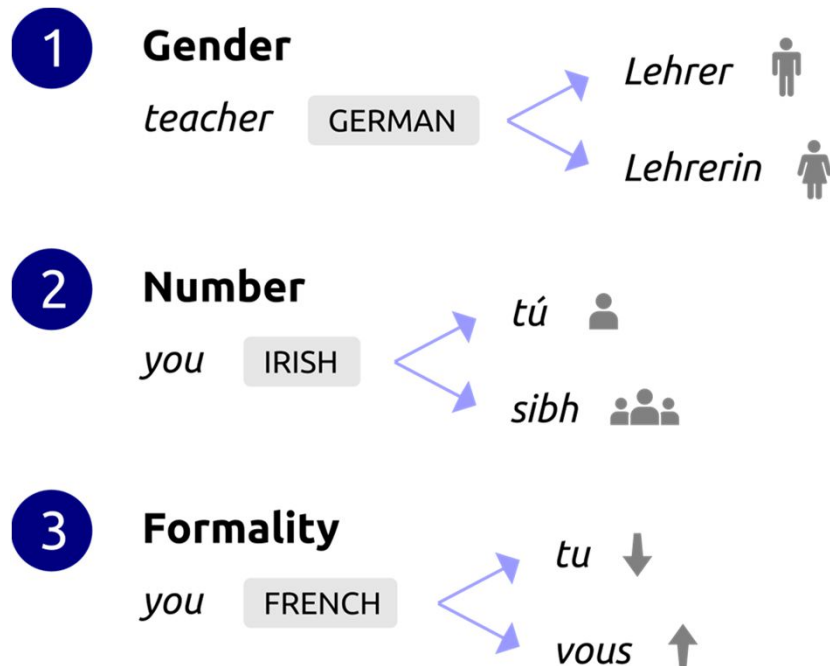
.Biased training data → biased language models

.Overgeneralisation

Impact of biased MT

.Incorrect translations

.Perpetuation of stereotypes



You don't hate bias, you hate ambiguity

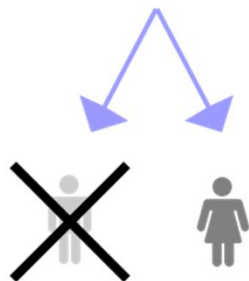
“Languages differ essentially in what they must convey and not in what they may convey.”

— Roman Jakobson, 1959

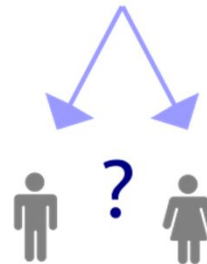


Resolvable versus unresolvable ambiguities

She is a teacher.



I am a teacher.



The Fairslator workflow

ENGLISH

How do you like your new teacher?

FRENCH

GERMAN

CZECH

IRISH

 **Wie gefällt dir deine neue Lehrerin?**

Who are you saying it to?

☒ one person

☒ addressed casually as "du"

☐ addressed politely as "Sie"

☐ more than one person

Who is the teacher?

☐ a man

☒ a woman

☐ unknown gender

Translated by [Google Translate](#), disambiguated by Fairslator.

The Fairslator workflow

MACHINE
TRANSLATION



ENGLISH

How do you like your new teacher?



FRENCH GERMAN CZECH IRISH



Wie gefällt dir deine neue Lehrerin?

Who are you saying it to?

- ☒ one person
 - ☒ addressed casually as "du"
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- ☐ more than one person

Who is the teacher?

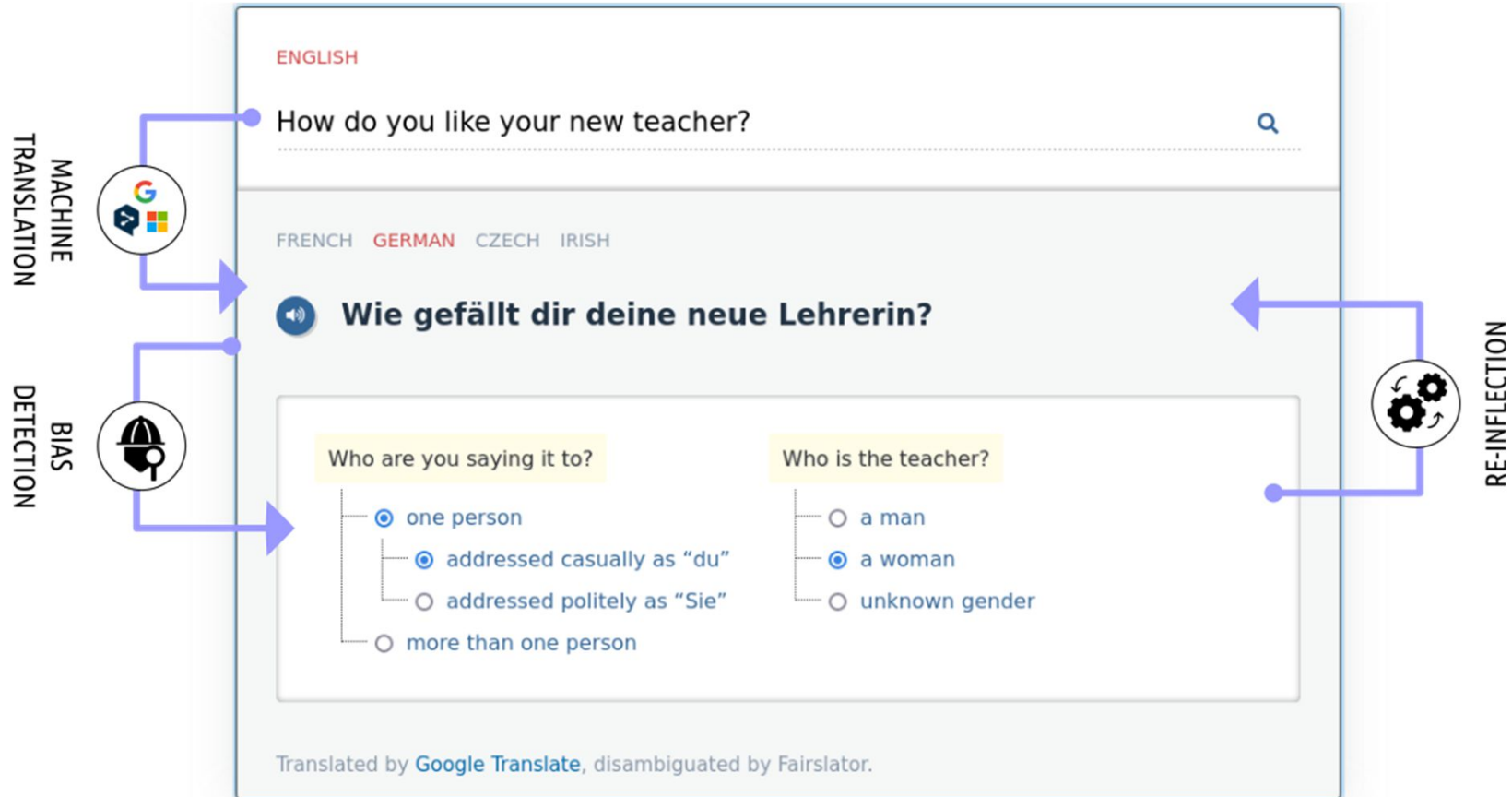
- ☐ a man
- ☒ a woman
- ☐ unknown gender

Translated by [Google Translate](#), disambiguated by Fairslator.

The Fairslator workflow



The Fairslator workflow



Fairslator is...

A plug-in for existing MT systems

- .Treats MT as a black box
- .Only examines its output

A set of rule-based algorithms

- .No massive machine-learning infrastructure needed
- .Workload: 3 – 5 person-days per language pair

Měchura, M. (2022) 'A taxonomy of bias-causing ambiguities in machine translation' 4th Workshop on Gender





Thank you.

www.fairslator.com

For more a deeper dive,
read the Fairslator Whitepaper

