

## 1. Tabular Inference

- Inference task where premises are tabular in nature.
- Given a premise table determine hypothesis is true (entailment), false (contradiction), or undetermined (neutral), i.e. tabular natural language inference.

Boxing (en)	
Focus	Punching, striking
Olympic sport	688 BC (Ancient Greece), 1904 (modern)
Parenthood	Bare-knuckle boxing
Country of origin	Prehistoric
Also known as	Western Boxing, Pugilism
	See note.

H1: The modern form of boxing started in the late 1900's. → **Contradiction**

- Above, we show an example premise table and hypothesis from InfoTabS dataset (Gupta et al., 2020).

## 2. Motivation

For Tabular Natural Language Inference, it's **not enough** to **only focus in English**.

Progress in Tabular Inference must be **across the board** which **includes all languages**.

INFOTABS → XINFOTABS  
en → de, fr, es, af, ru, zh, ko, hi, ar

## 3. Our Contributions

- XINFOTABS, is a **multilingual tabular inference dataset** which contains instances in **ten diverse languages**.
- To create XINFOTABS, we leverage **machine translation models** which provide **high-quality translations** of tabular data.
- We assess reasoning ability of state-of-the-art **multilingual models** trained with **varying strategies** over XINFOTABS.

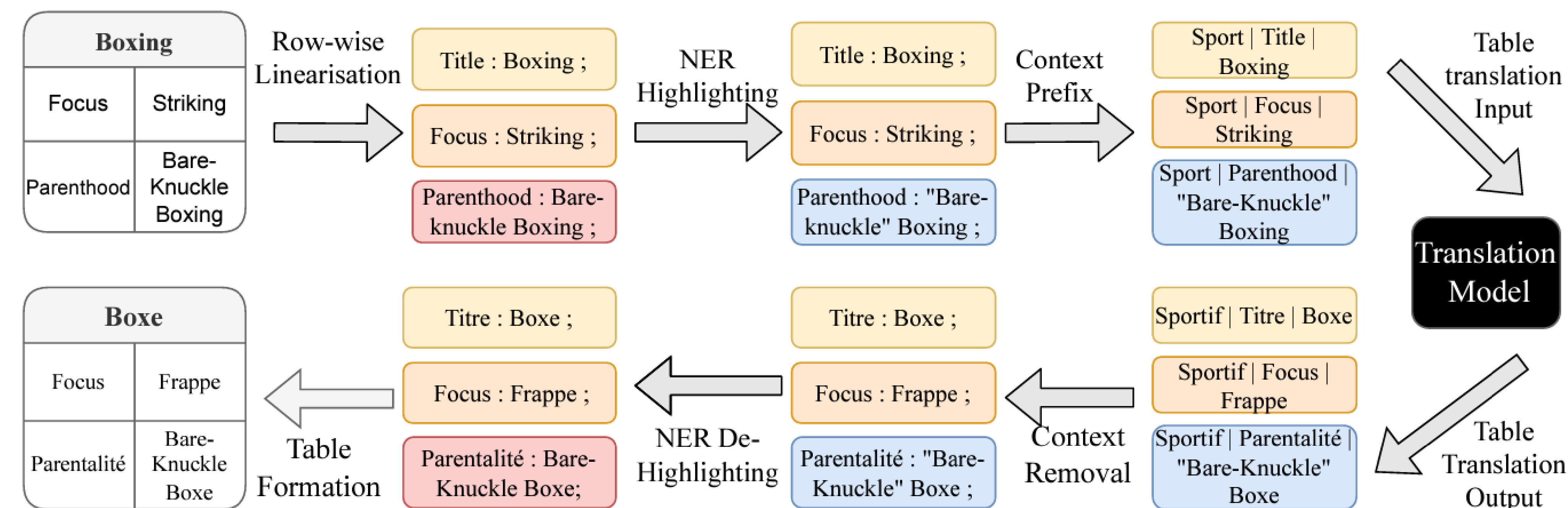
## 4. XInfoTabS Example

Boxing (en)		Boxe (fr)	
Focus	Punching, striking	Focus	Punching, frappe
Olympic sport	688 BC (Ancient Greece), 1904 (modern)	Sport olympique	688 av. J.-C. (Grèce ancienne), 1904 (moderne)
Parenthood	Bare-knuckle boxing	Parentalité	Bare-knuckle boxe
Country of origin	Prehistoric	Pays d'origine	Préhistorique
Also known as	Western Boxing, Pugilism	Aussi connu sous le nom	Western Boxing, Pugilism
	See note.		Voir note.

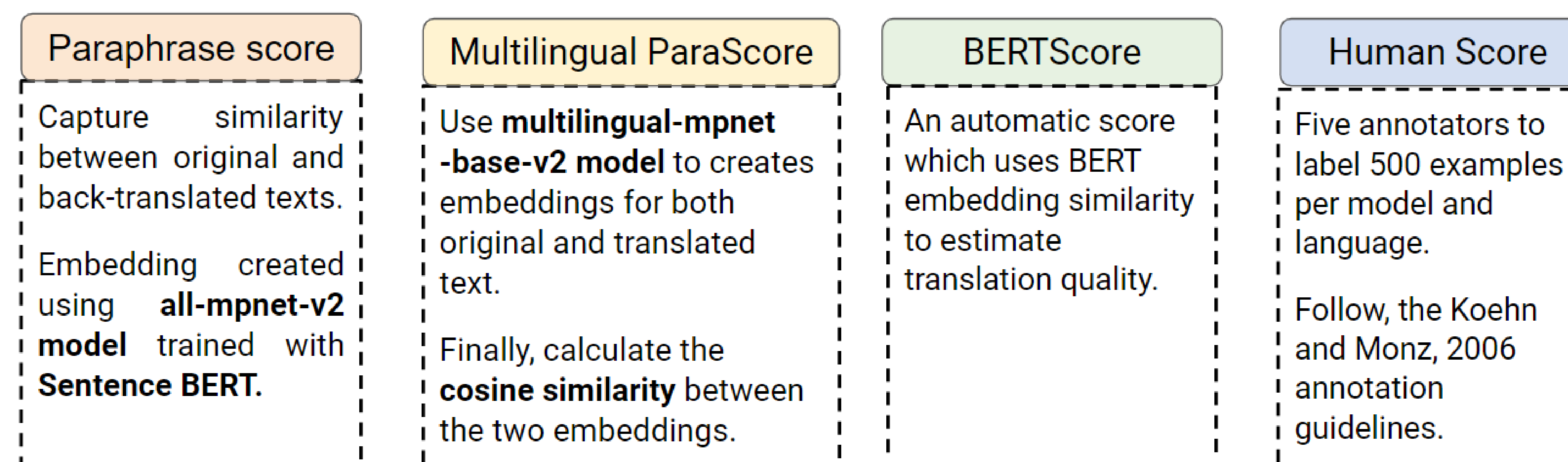
  

Language	Hypothesis	Label
English	The modern form of boxing started in the late 1900's.	CONTRADICTION
German	Boxen hat seinen Ursprung als olympischer Sport, der vor Jahrtausenden begann.	CONTRADICTION
French	La boxe occidentale implique des punches et des frappes	ENTAILMENT
Spanish	El boxeo ha sido un evento olímpico moderno durante más de 100 años.	ENTAILMENT
Afrikaans	Bare-knuckle boks is 'n prehistoriese vorm van boks.	NEUTRAL

## 5. Table Translation Pipeline

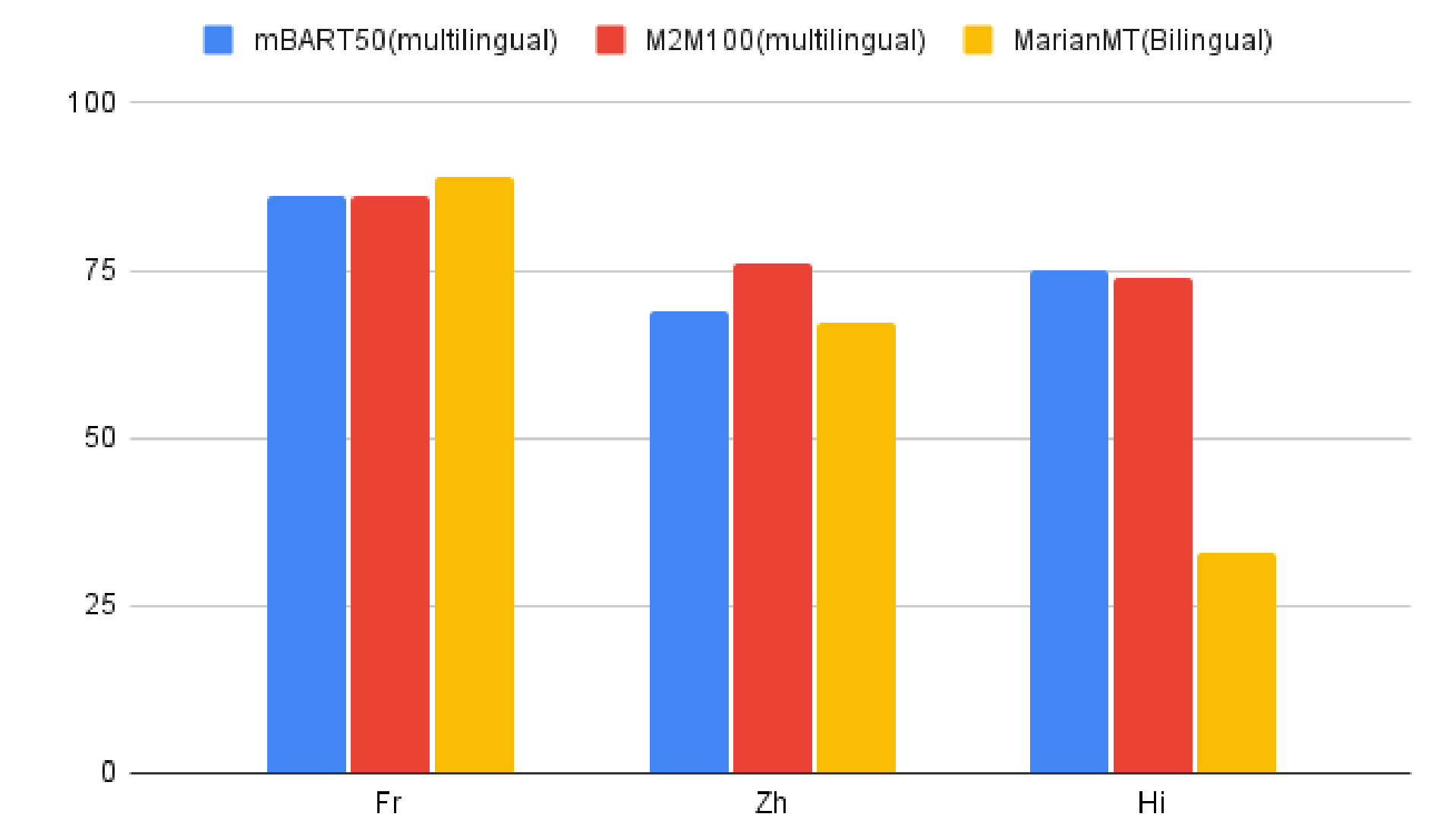


## 6. XInfoTabS Quality Verification



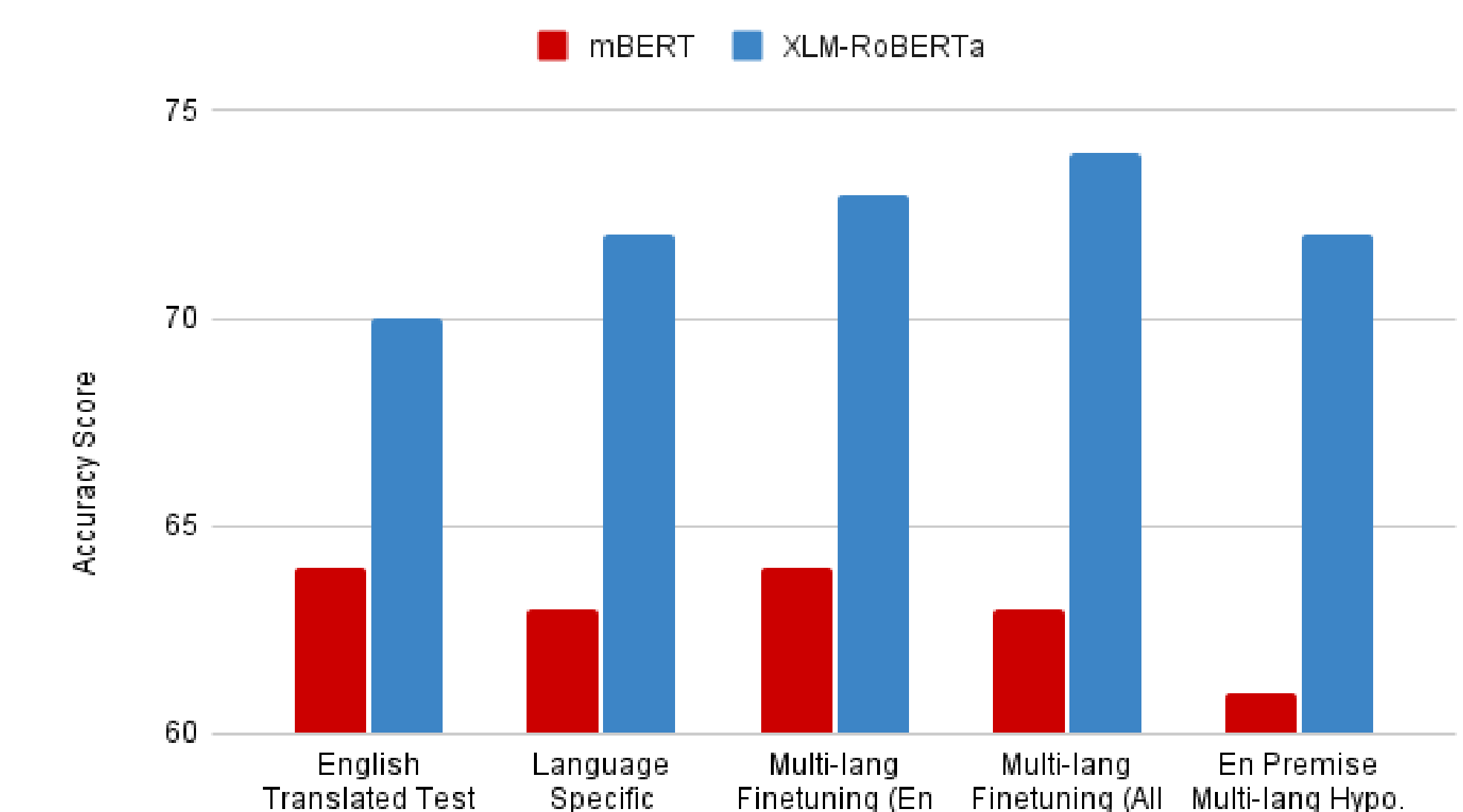
## 7. Model Selection

Bilingual Models → High Resource Languages  
Multilingual Models → Low Resource Languages

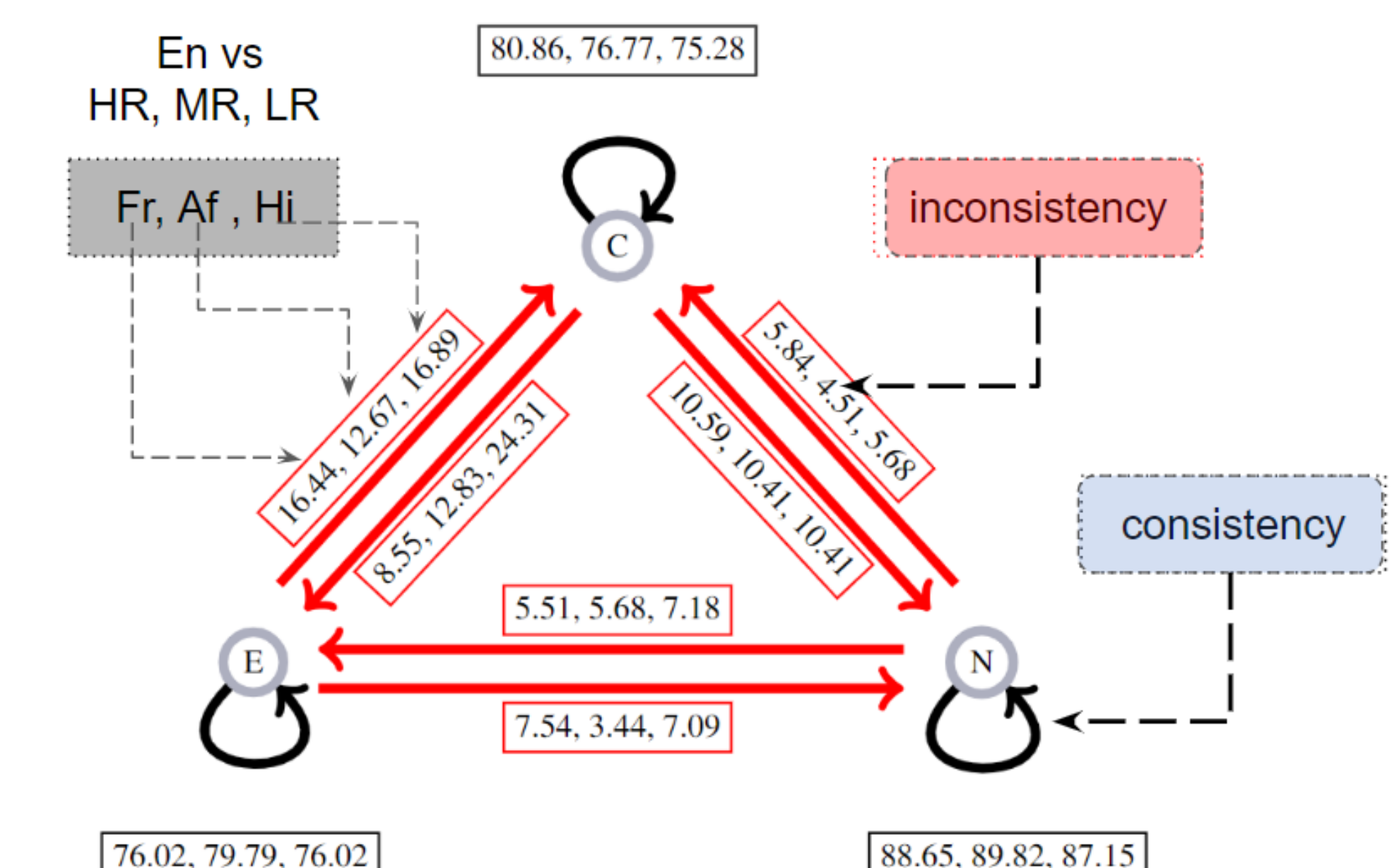


## 8. Multilingual Inference

Multiple training/evaluation strategies.  
All language finetuning performs best.



## 9. Inconsistency Analysis



Code: <https://xinfotabs.github.io>