

# A Rose by Any Other Name would *not* Smell as Sweet:



## Social Bias in Names Mistranslation

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### Name-Related Mistranslations Harm Everyone

Spanish Sentence:

**Alicia** es dietista con un título de posgrado en nutrición y bienestar.

Translation to English:

**Alice** is a dietitian with a postgraduate degree in nutrition and well-being.

**Wrong name**



### Our Contributions



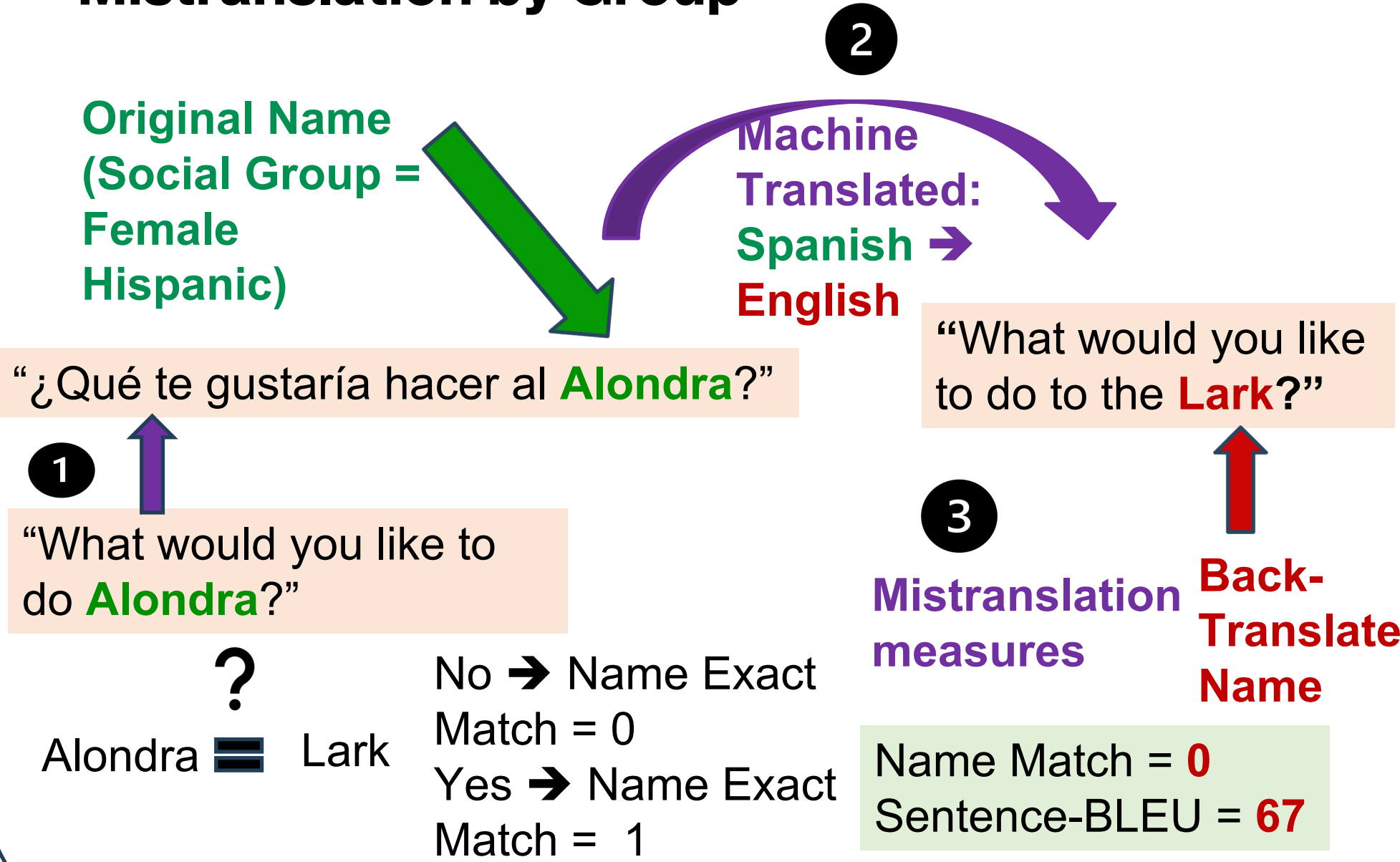
- Diverse Names in Context Data Set (DNIC)
- Highlight an Overlooked Issue
- Provide Framework to 1) measure name mistranslation across social groups; 2) measure the impact of a social group on name mistranslation



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### Our Approach to Social Impact Assessment

#### Framework to Measure Name Mistranslation by Group



#### Measurement Approach to Assess Name Mistranslation Social Impact

$$y = f\left(b + \underbrace{gG}_{\text{Baby Gender}} + \underbrace{z_2Z_2 + z_3Z_3 + z_4Z_4}_{\text{Birth Parent's Race/Ethnicity}} + \underbrace{d_1G \times Z_2 + d_2G \times Z_3 + d_3G \times Z_4}_{\text{Interactions between Gender and Race/Ethnicity}} + \underbrace{s_2S_2 + s_3S_3}_{\text{MT Systems}} + \underbrace{l_2L_2 + l_3L_3 + l_4L_4}_{\text{Pivot Languages}} + \underbrace{t_2T_2 + \dots + t_{16}T_{16}}_{\text{Template Id}}\right) \quad (1)$$

- $y$  = name exact match
- $X$  (0 or 1) for race/ethnicity and gender, & their interactions
- Social Group coefficients ~ impact** of the social group association on the name translation

### Results

#### Name Mistranslations are Correlated with Social Groups

Logistic Mixed Effects Regression:

The Odds of a Correct Name Translation by Social Group

Variable	Odds Ratio	Coefficient	p
(Intercept)	3.92	1.37	0.0123 *
IsFemale	0.92	-0.08	0.0000 ***
IsBlack	0.93	-0.07	0.0042 **
IsAsorPI	1.20	0.18	0.0000 ***
IsHisp	1.21	0.19	0.0000 ***
IsFemale:IsBlack	0.69	-0.37	0.0000 ***
IsFemale:IsAsorPI	0.87	-0.13	0.0008 ***
IsFemale:IsHisp	0.62	-0.47	0.0000 ***

Logistic Mixed Effects Regression: The Full Effect of the Combination of Social Group Associations on the Odds of a Correct Name Translation

Full Effect of Ethnicity and Gender on Correct Name Translation	Odds Ratio	Estimate (log odds) for Full Effect of Ethnicity and Gender	% Change in Odds Rel. to White Males (Odds = 1)
Black and Female	0.59	-0.55	-40.9
Asian or Pacific Islander and Female	0.97	-0.03	-3.1
Hispanic and Female	0.69	-0.36	-30.5

Linear Mixed Effects Regression: Sentence Translation Quality by Social Group

Fixed effects	Estimate	p
(Intercept)	22.8	0.4673
IsFemale	0.1	0.4690
IsBlack	-.25	0.2039
IsAsorPI	0.25	0.2247
IsHisp	0.32	0.0470 *
IsFemale:IsBlack	-.83	0.0013 **
IsFemale:IsAsorPI	-.22	0.4640
	-0.77	
IsFemale:IsHisp		0.0006 ***

Qualitative Analysis: Range of Mistranslation Errors by Category

