

Identifying the Human Values behind Arguments

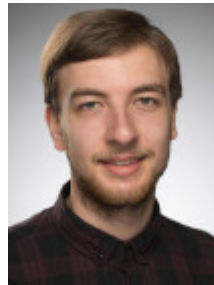
ACL 2022



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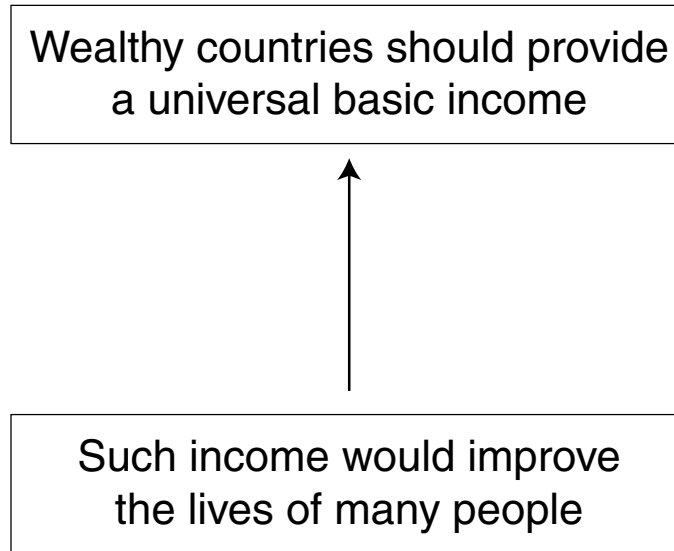


**Benno
Stein**¹



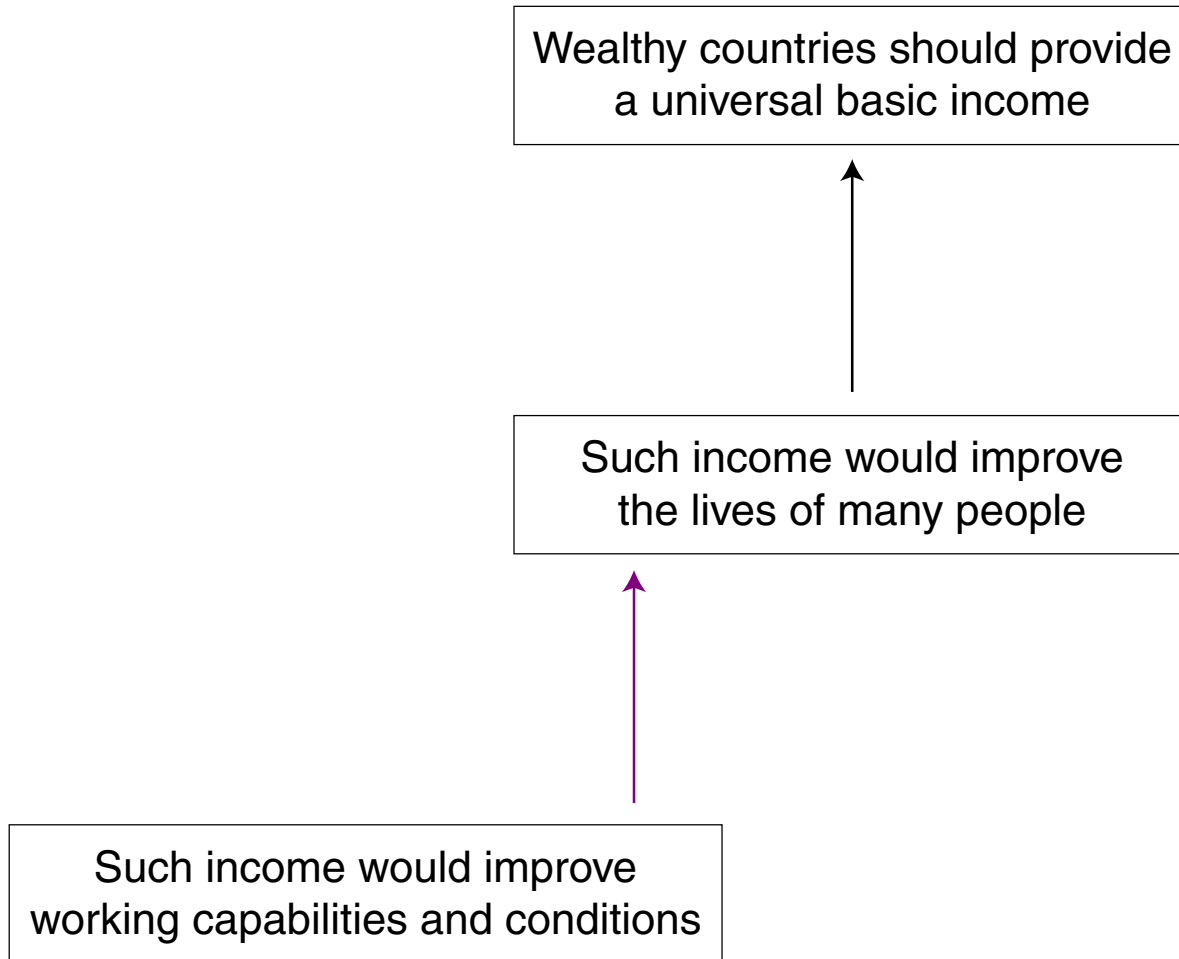
Identifying the Human Values behind Arguments

Background



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Background

“Epistemological Why”
- Why is this true?

Wealthy countries should provide
a universal basic income



Such income would improve
the lives of many people

epistemological
support



Such income would improve
working capabilities and conditions

Identifying the Human Values behind Arguments

Background

“Epistemological Why”
- Why is this true?

Wealthy countries should provide
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“Ethical Why”
- Why is this good?

Such income would improve
the lives of many people

epistemological
support

ethical
support

Such income would improve
working capabilities and conditions

It is good if people
have a comfortable life

Identifying the Human Values behind Arguments

Background

“Epistemological Why”

- Why is this true?
- Ever branching reasons (infinitely?)



Source: kialo.com

epistemological support

Wealthy countries should provide a universal basic income

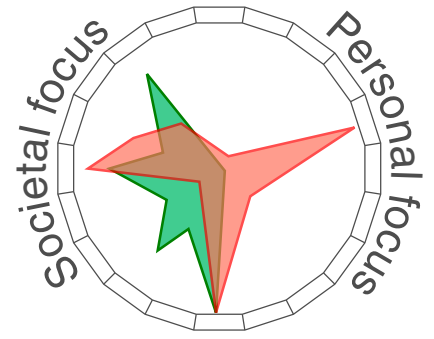
Such income would improve the lives of many people

Such income would improve working capabilities and conditions

It is good if people *have a comfortable life*

“Ethical Why”

- Why is this good?
- Leading to *values* (finite set)



ethical support

Identifying the Human Values behind Arguments

Values in Argumentation Frameworks

Value priorities are one aspect of argument strength (Bench-Capon, 2021)

“Consider the arguments *We should raise taxes to reduce inequality* and *We should not raise taxes as people have a right to spend their money as they wish*. Which is stronger? I would say the former and Boris would say the latter. It is a matter of the values to which one subscribes.”



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Values in Argumentation Frameworks

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Audience-specific value-based argumentation framework (Bench-Capon, 2003)

$$\text{VAF}_a = \langle AR, \text{attacks}, V, \text{val}, \text{valpref}_a \rangle$$

- Set of arguments AR
- Irreflexive binary relation attacks on AR
- Set of values V
- Function $\text{val} : AR \mapsto V$
- Preference relation valpref_a on V^2 for audience a

Identifying the Human Values behind Arguments

Value Taxonomy



Example value: *Have a comfortable life*

E.g., arguments listing

- ❑ subsistence income
- ❑ having no financial worries
- ❑ a higher general happiness
- ❑ a prosperous life

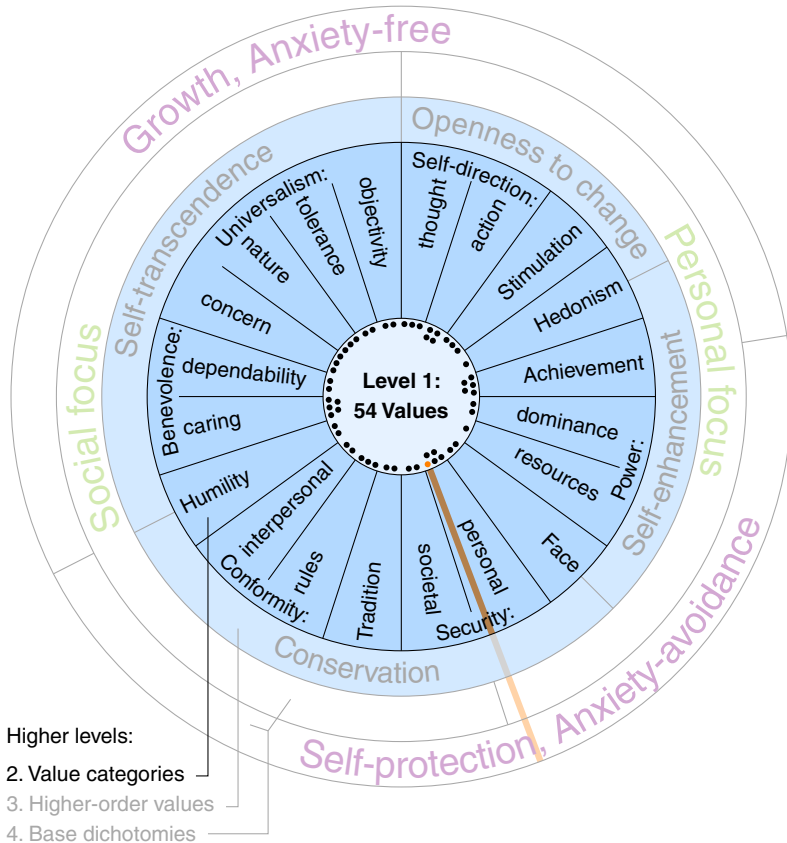
Higher levels:

2. Security: personal
3. Conservation
- 4a. Personal focus
- 4b. Self-protection, Anxiety avoidance

Taxonomy based on Schwartz et al., 2012 (mostly); Rokeach, 1973; Brown and Grace 2002; and the World Value Survey

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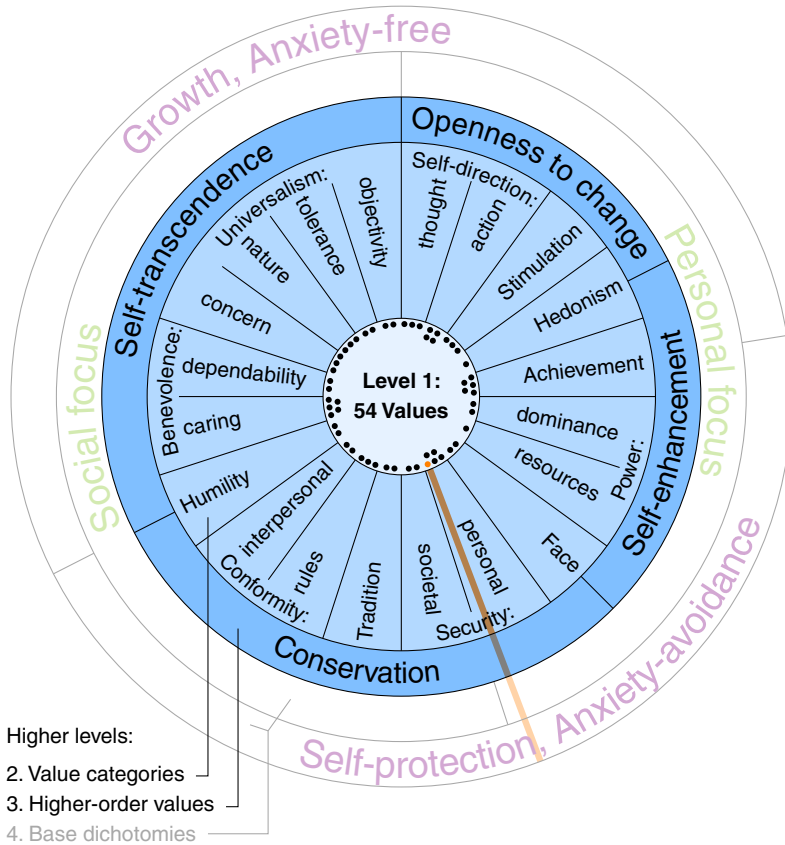
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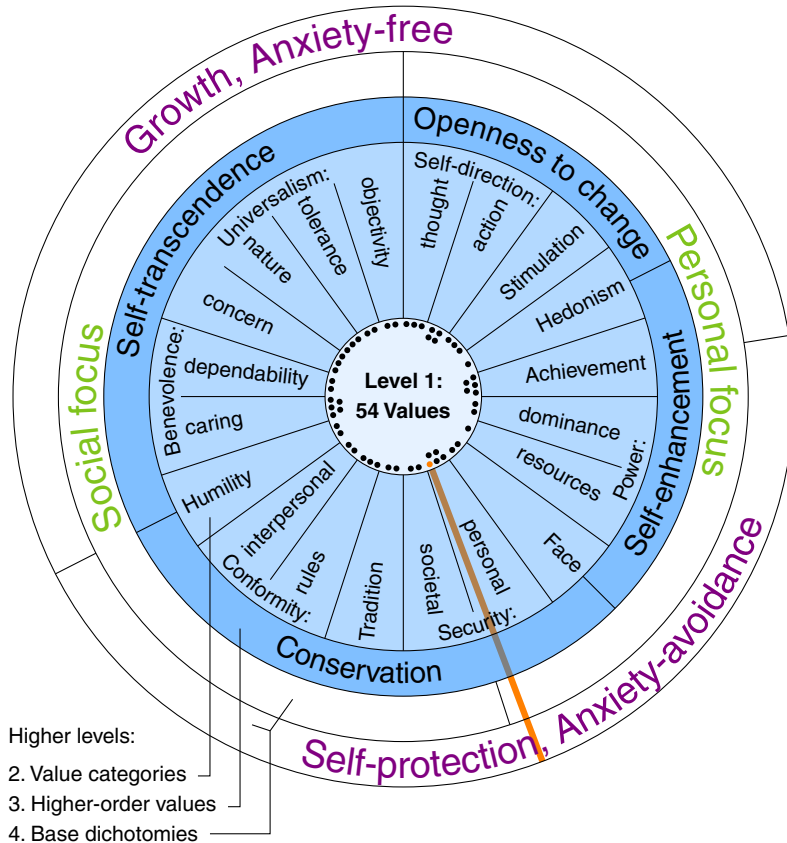
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Identifying the Human Values behind Arguments

Dataset: Webis-ArgValues-22

Part	Source	Conclusions	Premises		
			Total	Pros	Cons
Africa	Editorials	23	50	37	13
China	QA website (in Chinese)	12	100	59	41
India	Curated pro/con list	40	100	60	40
USA	IBM-ArgQ-Rank-30kArgs	71	5020	2619	2401
Total		146	5270	2775	2495



Annotation:

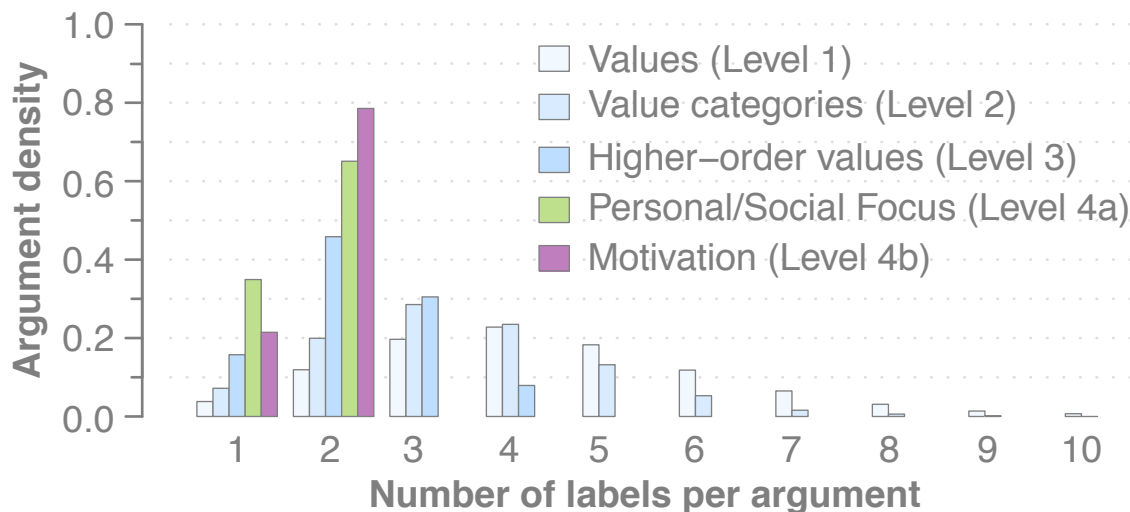
Crowdsourced (MTurk)

3 annotators/argument

2:40 minutes/argument

Value-wise α of 0.49

Values propagated up



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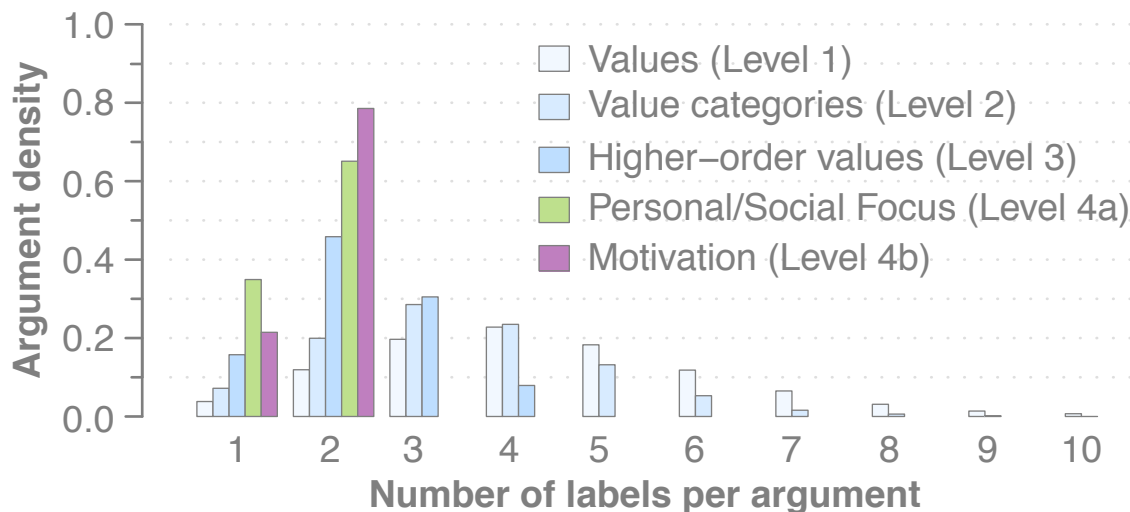
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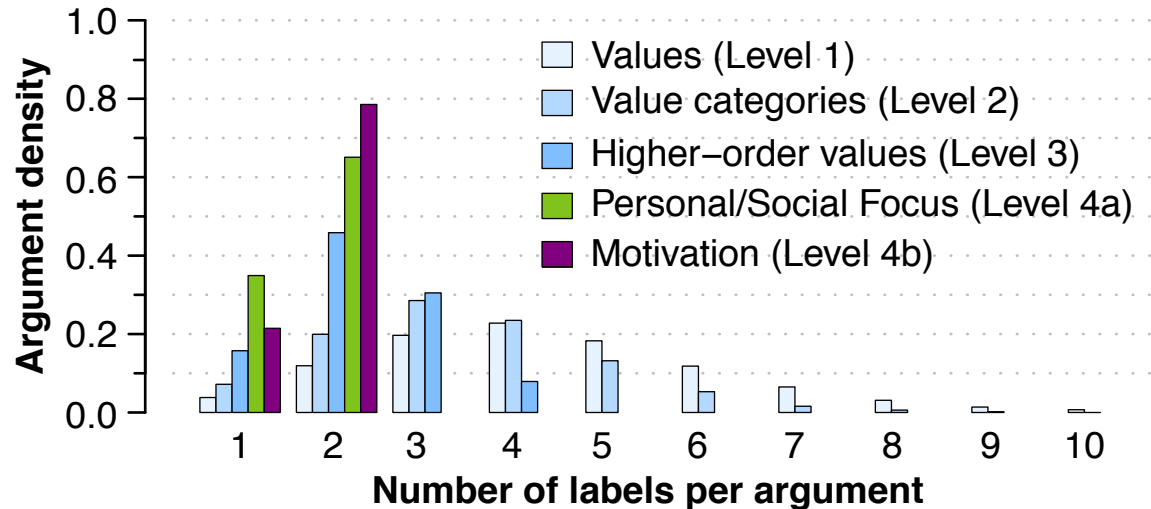
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Examples

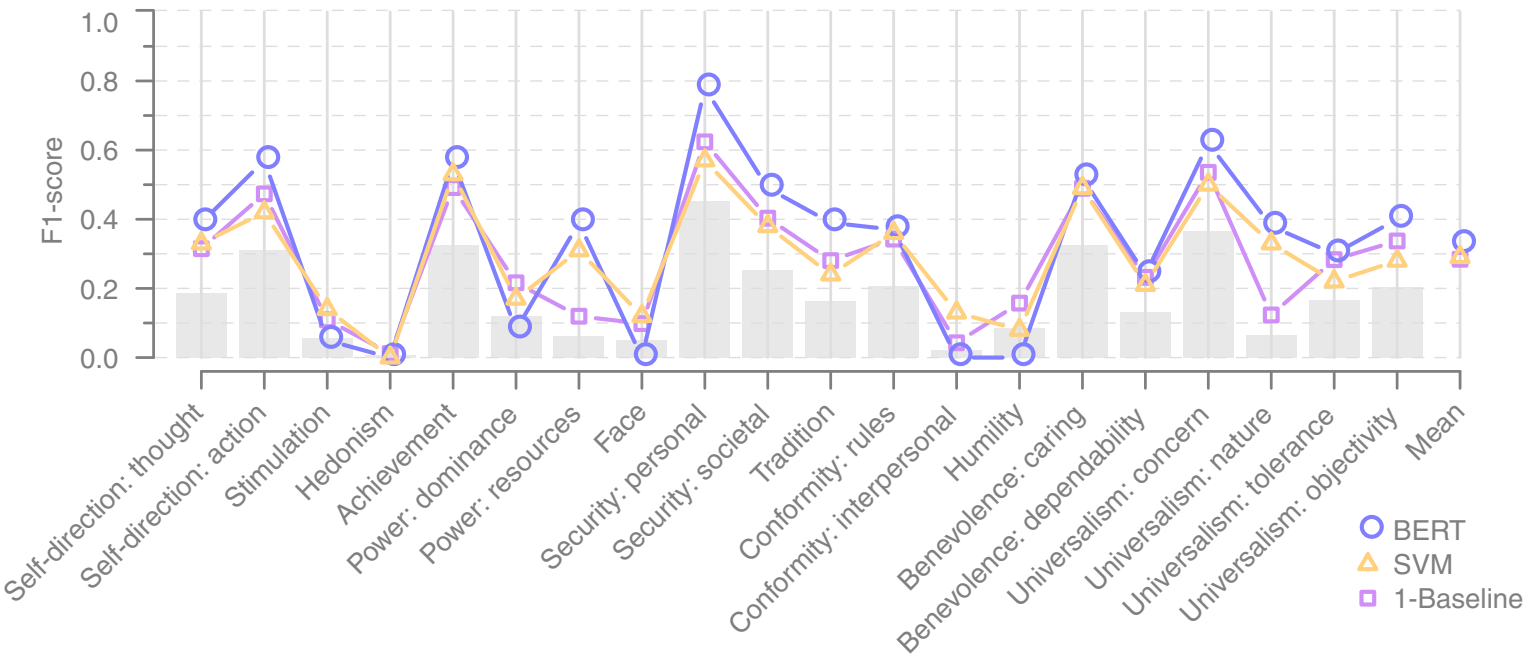
Argument	Values	Part
<ul style="list-style-type: none">Pro “South Africa’s COVID-19 lockdown was too strict”: The economic ramifications of the lockdown have been huge, and have been felt hardest by those who were already most vulnerable.	Have a comfortable life, Have a stable society, Have equality	Africa
<ul style="list-style-type: none">Pro “We should protect our privacy in the Internet age”: The leaked personal information will be defrauded by fraud gangs to gain trust and carry out fraudulent activities.	Have privacy, Have a stable society, Be compliant	China
<ul style="list-style-type: none">Con “Rapists should be tortured”: Throughout India, many false rape cases are being registered these days. Torturing all of the accused persons causes torture to innocent persons too.	Have a safe country, Have a stable society, Be just	India
<ul style="list-style-type: none">Pro “We should adopt an austerity regime”: An austerity regime will help to reduce the deficit of the country.	Have no debts, Have a stable society, Be responsible	USA

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Automatic Identification: Trained on USA; Tested on USA

Model	Level 1				Level 2				Level 3			
	P	R	F ₁	Acc	P	R	F ₁	Acc	P	R	F ₁	Acc
BERT	0.40	0.19	0.25	0.92	0.39	0.30	0.34	0.84	0.65	0.78	0.71	0.67
SVM	0.21	0.19	0.20	0.88	0.30	0.30	0.30	0.77	0.66	0.68	0.67	0.65
1-Baseline	0.08	1.00	0.16	0.08	0.18	1.00	0.28	0.18	0.60	1.00	0.75	0.60

Value categories (Level 2)

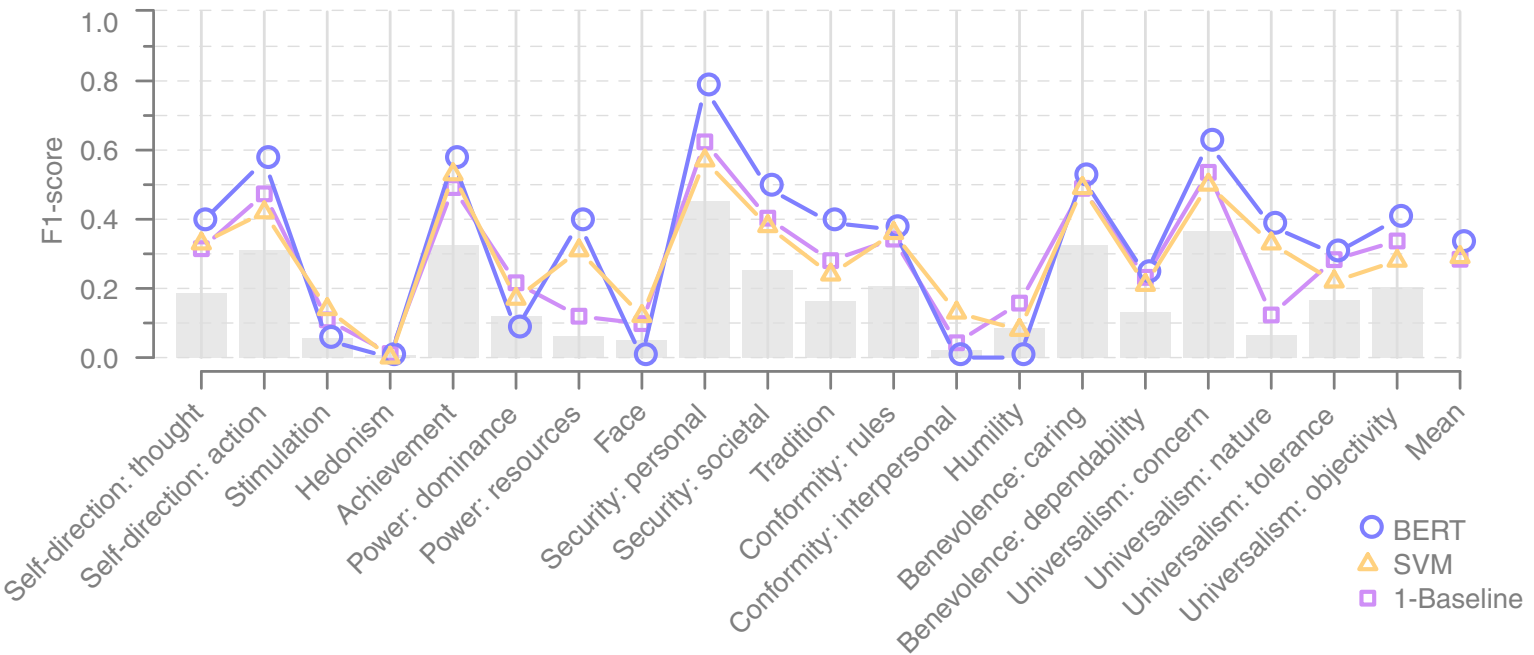


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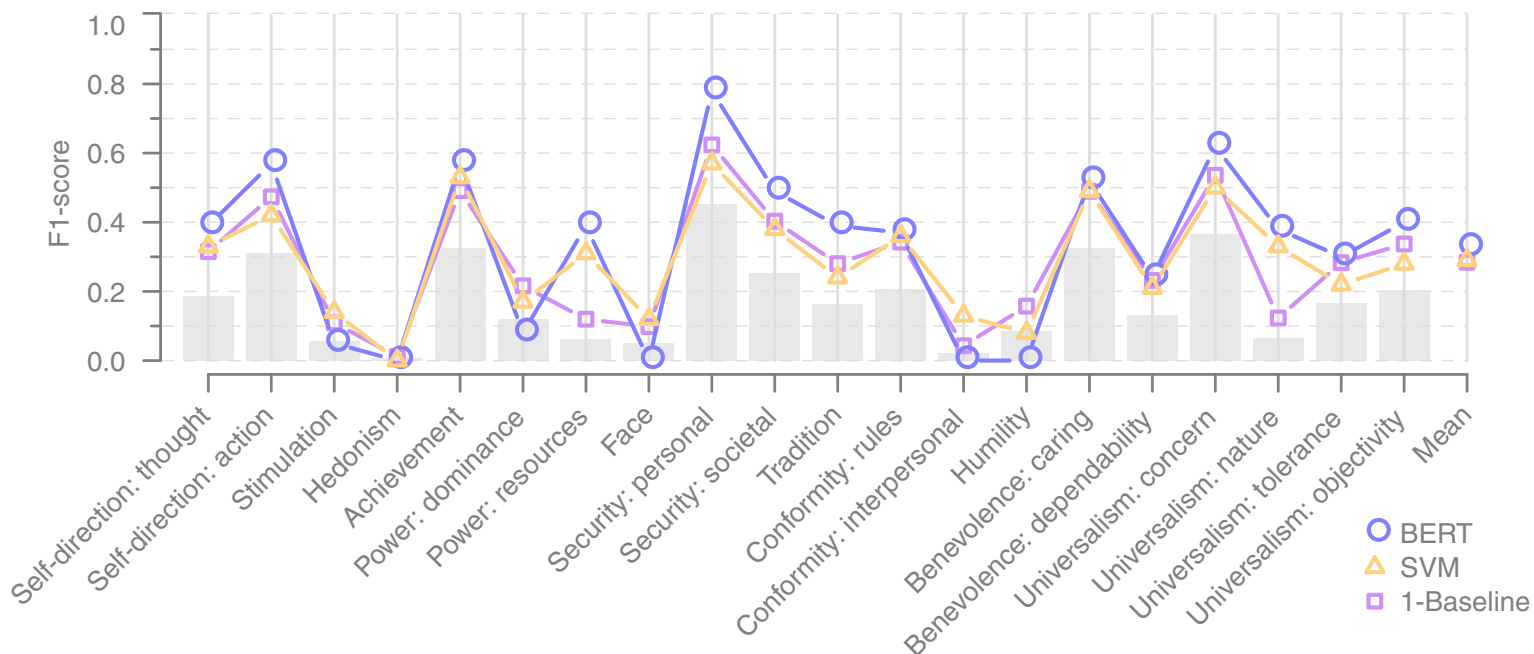


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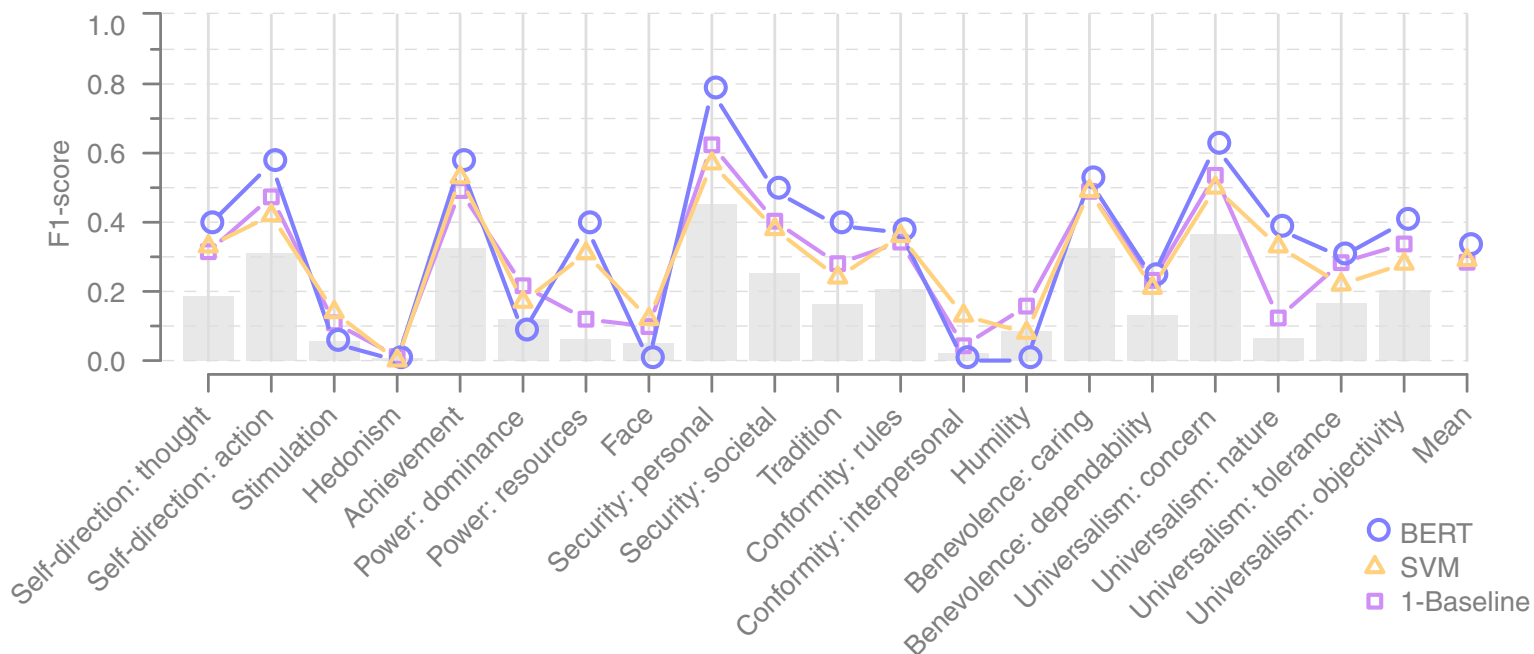


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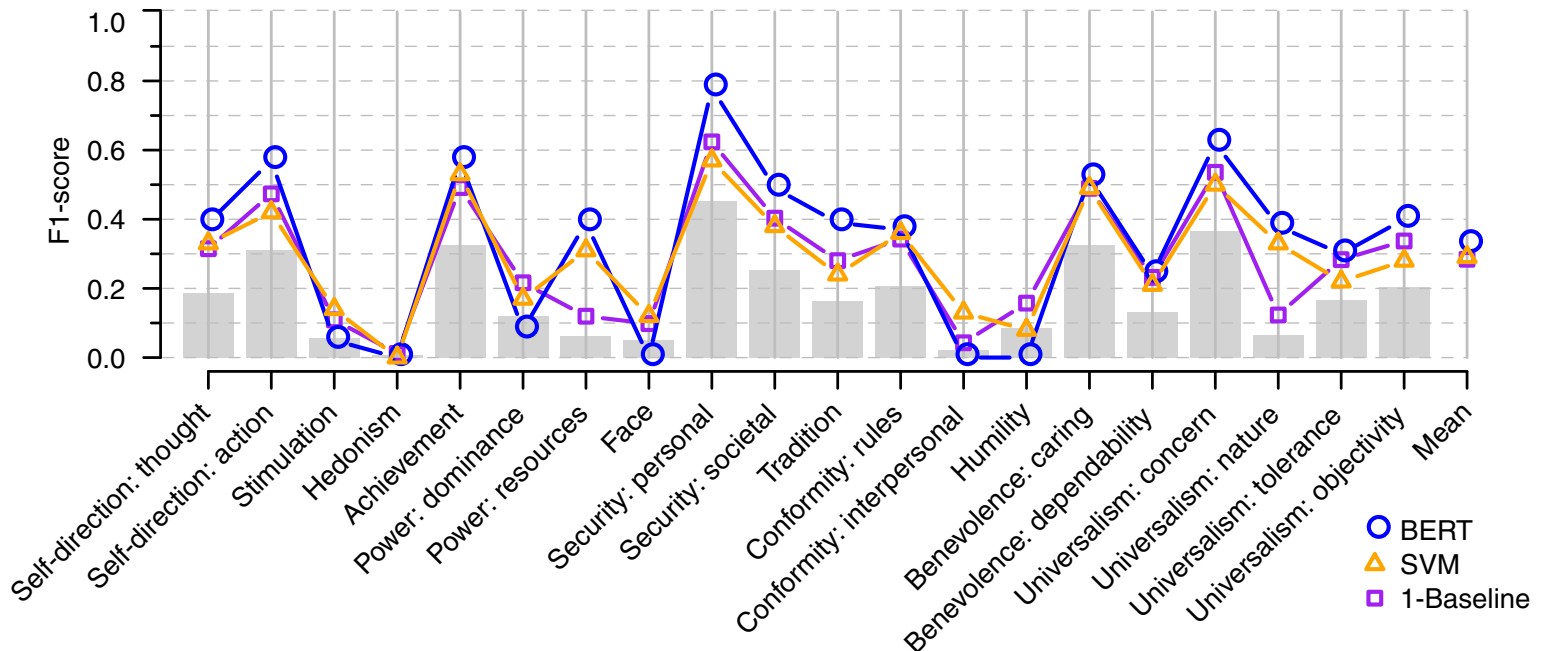


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Value categories (Level 2)



Identifying the Human Values behind Arguments

Automatic Identification: Trained on USA; Tested on X

Measure: F_1

Model	Level 1				Level 2				Level 3			
	Africa	China	India	USA	Africa	China	India	USA	Africa	China	India	USA
BERT	0.20	0.21	0.30	0.25	0.38	0.37	0.41	0.34	0.60	0.68	0.71	0.71
SVM	0.21	0.21	0.25	0.20	0.29	0.30	0.27	0.30	0.53	0.57	0.57	0.67
1-Baseline	0.16	0.13	0.12	0.16	0.27	0.23	0.21	0.28	0.63	0.65	0.62	0.75

Identifying the Human Values behind Arguments

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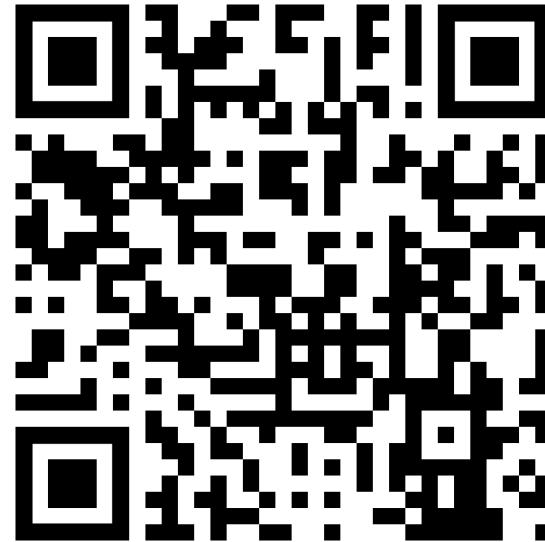
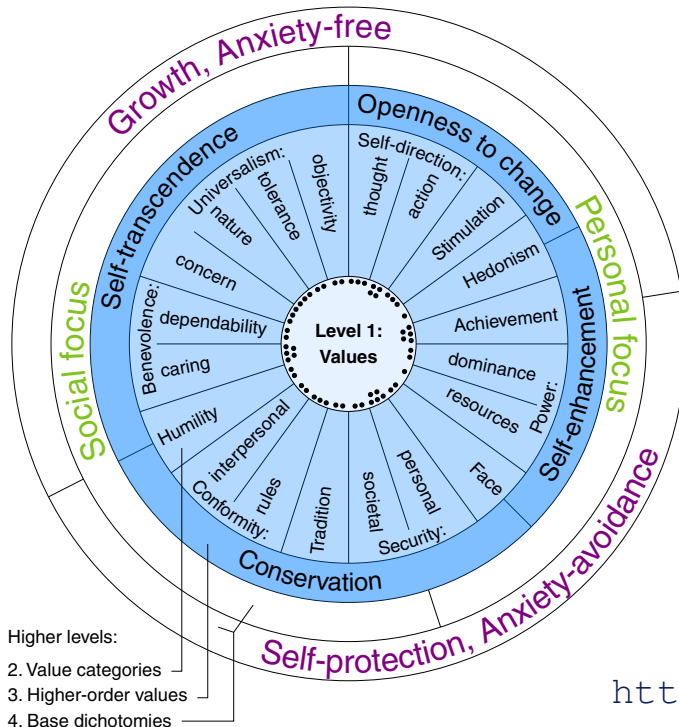
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BERT	0.20	0.21	0.30	0.25	0.38	0.37	0.41	0.34	0.60	0.68	0.71	0.71
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Conclusion

- ❑ “Ethical Why” – the human values an argument resorts to
- ❑ Multi-level value taxonomy with 54 values based on social science research
- ❑ Labeled dataset of 5270 arguments and first classification experiments



paper, code, data

https://publications.webis.de#kiesel_2022b