

Diagnostics report

2026-06-15

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Generated: 2026-06-15 16:40:02 CEST Release: v0 Model positions source: `party_positions_2026-06-12_16-35-01.csv`

0.1 Purpose

The purpose of this report is to provide the appendix-style diagnostics that document how the released party-position estimates are constructed, checked, and validated. The main article reports the central validation evidence; this report keeps the larger technical tables with the release so readers can inspect item coverage, source coverage, coding orientation, harmonization, convergence, posterior uncertainty, and validation details in one reproducible place.

0.2 Overview

This report follows the structure of the technical appendix material: data and item coverage, coding and scale orientation, party-union harmonization, construct checks, model convergence, and validation. It is generated from the model-ready inputs and completed model outputs; it is not part of the raw-data setup workflow.

0.3 Data and item coverage

The model combines text-coded item counts, dimension-specific expert placements, and general left-right expert placements. Text items enter as positive/sample counts, expert items enter as aggregated ratings with scale and expert-count information, and general left-right ratings anchor the relationship between the two dimensions.

source_file	dimension	items
expert.csv	cultural cosmopolitan-traditionalist	7
expert.csv	economic left-right	5
lr_data.csv	general left-right	3
text_data.csv	cultural cosmopolitan-traditionalist	11
text_data.csv	economic left-right	6

0.3.1 Source coverage

source_file	source	items	observations	party_years	parties	countries	min_year	max_year
expert.csv	CHES	2	2639	1320	390	44	1999	2024
expert.csv	GPS	2	538	271	271	62	2019	2019

source_file	source	items	observations	party_years	parties	countries	min_year	max_year
expert.csv	POPPA	1	413	413	225	31	2018	2023
expert.csv	V-Party	7	21488	3076	589	65	1970	2019
lr_data.csv	CHES	1	1320	1320	390	44	1999	2024
lr_data.csv	Morgan	1	471	471	72	11	1945	1973
lr_data.csv	POPPA	1	416	416	225	31	2018	2023
text_data.csv	Manifesto Project	8	36008	4501	713	65	1920	2025
text_data.csv	PolDem	9	2194	406	93	15	1972	2017

0.4 Data coding and item orientation

All indicators are oriented toward the two reported dimensions: economic left-right and cultural cosmopolitan-traditionalist. For interpretability, generated diagnostics report whether higher observed values point toward the public high pole or are reversed for reporting. Original source variable names are preserved in the tables.

0.4.1 Reversed items

item	source	dimension	higher_values_indicate	observations	min_year	max_year
internationalism	Manifesto Project	cultural cosmopolitan-traditionalist	cosmopolitan	4501	1920	2025
multiculturalism	Manifesto Project	cultural cosmopolitan-traditionalist	cosmopolitan	4501	1920	2025
economic_interventions	Manifesto Project	economic left-right	pro_welfare	4501	1920	2025
social_services	Manifesto Project	economic left-right	pro_welfare	4501	1920	2025
cultlib_poldem	PolDem	cultural cosmopolitan-traditionalist	cosmopolitan	299	1972	2017
euro_poldem	PolDem	cultural cosmopolitan-traditionalist	cosmopolitan	93	1978	2017
europe_poldem	PolDem	cultural cosmopolitan-traditionalist	cosmopolitan	217	1972	2017
immig_poldem	PolDem	cultural cosmopolitan-traditionalist	cosmopolitan	236	1972	2017
welfare_poldem	PolDem	economic left-right	pro_welfare	349	1972	2017

0.5 Party unions and electoral coalitions

Alliance and union labels are handled through constituent mappings so the released party identifiers represent individual parties. Shared text evidence can inform constituent parties through the union mapping while expert data continue to constrain individual parties directly.

metric	category	value
constituent_mappings	all	106
unique_union_or_alliance_ids	all	76
unique_constituent_party_ids	all	100

metric	category	value
mappings_by_country	AR	5
mappings_by_country	AU	2
mappings_by_country	BA	1
mappings_by_country	BE	4
mappings_by_country	BG	5
mappings_by_country	BR	6
mappings_by_country	CH	1
mappings_by_country	CL	8
mappings_by_country	CZ	4
mappings_by_country	DE	3
mappings_by_country	EC	1
mappings_by_country	EE	3
mappings_by_country	ES	3
mappings_by_country	FR	4
mappings_by_country	GR	3
mappings_by_country	HR	4
mappings_by_country	IE	1
mappings_by_country	IL	2
mappings_by_country	IT	8
mappings_by_country	LK	3
mappings_by_country	LT	4
mappings_by_country	LU	1
mappings_by_country	LV	6
mappings_by_country	MD	1
mappings_by_country	ME	1
mappings_by_country	MX	2
mappings_by_country	NL	1

0.6 Party-family coverage

Party-family classifications are used for construct-validity diagnostics and coverage summaries. The table below reports coverage in the completed model output by family code.

family	parties	party_years	countries	min_year	max_year
soc	86	2892	37	1944	2025
con	82	2425	34	1944	2024
lib	81	2063	35	1944	2025
chr	41	1596	24	1945	2025
com	49	1241	27	1944	2025
right	50	975	26	1946	2025
eco	30	723	24	1960	2024
agr	12	592	10	1944	2024
spec	25	520	14	1949	2024
other	2	40	2	1992	2024

0.6.1 Construct-validity family means

Substantive party-family means provide a construct-validity check: families should follow the expected ordering on the economic left-right and cultural cosmopolitan–traditionalist dimensions.

family_name	n_parties	n_obs	mean_economic	sd_economic	mean_cultural	sd_cultural
Communist/Far Left	49	1241	0.12	0.09	0.383	0.18

family_name	n_parties	n_obs	mean_economic	sd_economic	mean_cultural	sd_cultural
Green/Ecological	30	723	0.267	0.115	0.251	0.092
Social Democratic	86	2892	0.331	0.124	0.378	0.138
Christian Democratic	41	1596	0.596	0.119	0.529	0.14
Radical Right	50	975	0.622	0.19	0.72	0.151
Conservative	82	2425	0.652	0.178	0.538	0.143
Liberal	81	2063	0.657	0.152	0.371	0.132

0.6.2 Temporal-stability flags

The model permits movement through random walks, but unusually large one-year changes are flagged for inspection rather than treated as automatic errors.

party_id	country	dimension	year_from	year_to	val_from	val_to	annual_change
556	LT	cultural	2019	2020	0.771	0.529	0.242
1663	IL	cosmopolitan-traditionalist	2021	2022	0.142	0.356	0.214
455	IL	cultural	1997	1998	0.457	0.643	0.186
455	IL	cosmopolitan-traditionalist	1996	1997	0.277	0.457	0.18
8393	LV	cultural	2018	2019	0.439	0.263	0.176
281	BE	cosmopolitan-traditionalist	1977	1978	0.671	0.843	0.173
556	LT	cultural	2001	2002	0.319	0.491	0.172
964	IS	economic left-right	2016	2017	0.691	0.521	0.17
298	NL	cultural	2018	2019	0.761	0.593	0.168
901	FI	cosmopolitan-traditionalist	1992	1993	0.486	0.647	0.161
467	SI	economic left-right	2018	2019	0.564	0.404	0.16
1221	IT	cultural	2007	2008	0.56	0.4	0.159
901	FI	economic left-right	1991	1992	0.327	0.486	0.159
455	IL	cultural	1998	1999	0.643	0.797	0.154
		cosmopolitan-traditionalist					

party_id	country	dimension	year_from	year_to	val_from	val_to	annual_change
1221	IT	economic left-right	2006	2007	0.709	0.56	0.149
2211	UA	economic left-right	2006	2007	0.417	0.562	0.145
631	CH	economic left-right	2018	2019	0.613	0.757	0.144
298	NL	cultural cosmopolitan– traditionalist	2019	2020	0.593	0.735	0.142
556	LT	cultural cosmopolitan– traditionalist	2000	2001	0.181	0.319	0.138
1417	IL	cultural cosmopolitan– traditionalist	1968	1969	0.498	0.635	0.137

0.7 Model convergence diagnostics

Convergence is assessed using split R-hat and effective sample size over monitored parameters.

metric	count	percentage
R-hat < 1.01	35258	100
R-hat 1.01-1.05	0	0
R-hat > 1.05	0	0
ESS > 1000	34853	98.85
ESS 400-1000	405	1.15
ESS < 400	0	0

0.7.1 Convergence by parameter group

dimension	parameters	mean_rhat	max_rhat	min_ess_bulk	mean_ess_bulk
cultural cosmopolitan– traditionalist	17585	1.001	1.006	810.509	6889.246
economic left-right	17585	1	1.004	670.708	5573.456
lr_country_offset	65	1.001	1.004	1078.198	5434.868
lr_decade_offset	8	1	1.001	2069.676	3372.016
lr_sigma	3	1.001	1.002	1956.611	2582.401
lr_source_offset	3	1	1	3477.519	3814.374
lr_weight	3	1.002	1.002	1540.806	1560.217
mean_sigma	6	1.005	1.009	534.811	918.502

0.8 Posterior uncertainty

The completed party-position output reports posterior standard errors and interval endpoints for both dimensions. These summaries describe the typical uncertainty in the release file used by the report.

rows	parties	countries	min_year	max_year	mean_economic	median_economic	mean_cultural	median_cultural_se
17585	708	65	1944	2025	0.065	0.063	0.058	0.055

0.9 Validation diagnostics

The validation diagnostics combine convergent and discriminant comparisons with expert surveys, posterior predictive coverage, construct checks, and out-of-sample validation when the corresponding outputs are available.

diagnostic	dimension	n	pearson_r	spearman_r	mae	coverage
convergent validity	economic left-right	4637	0.904	0.901	0.076	NA
convergent validity	cultural cosmopolitan-traditionalist	1425	0.96	0.967	0.079	NA
posterior predictive coverage	economic left-right	7455	NA	NA	NA	0.899
posterior predictive coverage	cultural cosmopolitan-traditionalist	15539	NA	NA	NA	0.848

0.9.1 Discriminant validity

model_dim	expert_dim	r_pearson	r_spearman	n	type	diagnostic
economic left-right	economic	0.904	0.901	4637	convergent	discriminant validity
cultural cosmopolitan-traditionalist	economic	0.422	0.435	4637	discriminant	discriminant validity
cultural cosmopolitan-traditionalist	cultural	0.96	0.967	1425	convergent	discriminant validity
economic left-right	cultural cosmopolitan-traditionalist	0.393	0.398	1425	discriminant	discriminant validity

0.9.2 External validation correlations

var	dimension	n	pearson_r	mean_absolute_error	coverage_95
culsup_vparty	cultural cosmopolitan-traditionalist	536	0.812	0.128	0.384
galtan_ches	cultural cosmopolitan-traditionalist	222	0.959	0.079	0.523
gender_vparty	cultural cosmopolitan-traditionalist	545	0.563	0.169	0.29
immig_vparty	cultural cosmopolitan-traditionalist	537	0.743	0.103	0.49
lgbt_vparty	cultural cosmopolitan-traditionalist	541	0.794	0.094	0.551
relig_vparty	cultural cosmopolitan-traditionalist	548	0.676	0.303	0.047

var	dimension	n	pearson_r	mean_absolute_error	coverage_95
lirecon_ches	economic	223	0.974	0.055	0.812
	left-right				
lirecon_poppa	economic	74	0.98	0.066	0.662
	left-right				
lirecon_vparty	economic	534	0.866	0.088	0.674
	left-right				
welf_vparty	economic	534	0.682	0.176	0.363
	left-right				

0.10 Generated tables

- alliance_union_harmonization.csv
- construct_family_positions.csv
- construct_temporal_stability_flags.csv
- external_validation_correlations.csv
- item_coding_orientation.csv
- item_coverage.csv
- model_convergence_by_dimension.csv
- model_convergence_summary.csv
- party_family_coverage.csv
- party_year_source_coverage.csv
- posterior_uncertainty_summary.csv
- posterior_validation_convergent_summary.csv
- posterior_validation_discriminant_summary.csv
- posterior_validation_uncertainty_summary.csv
- reversed_items.csv
- source_coverage.csv