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The DE-BIAS Vocabulary and Knowledge Graph

Documentation

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Document information

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History of changes		
Version	Change(s) applied	Contributors

Target audience

- Cultural heritage professionals, researchers, and IT professionals wanting to query, use or re-use the DE-BIAS Knowledge Graph

Learning goals

- Understand how the DE-BIAS Vocabulary was created
- Understand how the DE-BIAS Knowledge Graph, the machine-readable format of the DE-BIAS Vocabulary, is structured
- Understand which classes and properties are used to build the DE-BIAS Knowledge Graph

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Introduction

The DE-BIAS vocabulary contains contentious terms that are known or expected to be present in cultural heritage collections' metadata. These terms are accompanied by contextual information on their problematic nature as well as recommendations for handling them for the five project languages: Dutch, English, French, German and Italian. The first version with terms in English and Dutch was part of deliverable "D2.1 Report on research into bias types and patterns, including a typology applied to Europeana use cases and a vocabulary co-created with communities". During the following project months, it was further developed and contains 687 terms as of December 2024[1], the final month of the DE-BIAS project. It provides the basis for the AI-powered DE-BIAS tool, which identifies and contextualises outdated or potentially harmful terms in object descriptions from cultural heritage institutions, but the vocabulary can also be used independently as a reference when reviewing cultural heritage collections.

Availability of the vocabulary

The vocabulary is published in three formats: the first is a tabular format (as a Google sheet) that allows easily accessible, asynchronous work by the editorial term to collect the terms and descriptions and document the status of completion for the entries[2]. The information in this sheet reflects the most up to date version of the vocabulary contents. Once a vocabulary entry is marked as ready in this sheet, it is transferred to the vocabulary management system VocBench to create the DE-BIAS Knowledge Graph, which can be downloaded from the EU Vocabularies environment and queried via a SPARQL endpoint[3]. Finally, the graph is mapped into a PDF publication of the vocabulary for users who prefer a more human-readable output compared to the sheet and the graph. These PDFs can be accessed on the DE-BIAS Vocabulary page on Europeana Pro.

Vocabulary creation

The vocabulary contains contentious terms in Dutch, English, French, German and Italian that are known or expected to be present in cultural heritage collections' metadata. It focuses on the domains of ethno-religious identity, gender and sexual identity, and migration and colonial past and extends to further domains, e.g. disability. The terms are accompanied by

[1] The English sub-vocabulary contains 220 terms, followed by German (163 terms) and Dutch (161). The French sub-vocabulary consists of 75 terms and 68 terms are included in the Italian sub-vocabulary.
[2] See the Editorial Guidelines for the link to this version of the DE-BIAS vocabulary and more information about how to contribute.
[3] The *Default Data Set Name (Graph IRI)* needs to be set to http://data.europa.eu/c4p/data/.

contextual information on their problematic nature as well as recommendations for handling them.

General approach

The vocabulary creation process took place in several iterations. As a starting point, we developed a "Typology of bias patterns"[4] that served as the theoretical framework. It establishes categories of bias like religion, sexuality or ethnicity using the concept of intersectionality[5] and combines it with an assessment of language patterns like euphemisms, dysphemisms or diminutives that transport biases in cultural heritage metadata. Afterwards, the editorial teams for each language started with the collection and description of the terms. In order to assure data consistency and meet requirements for tone of voice, readability and workflows of the bias detection tool, a set of editorial guidelines were defined. These guidelines recommend for example that the context descriptions are written at a lower-secondary school reading level and avoid Eurocentric generalisations. Furthermore they require that each term must be accompanied by a recommendation on how to handle it and that all spelling variants of a term (with and without hyphen, British or American English etc.) are listed to cater to the best possible recall of the bias detection tool when searching for the terms. Compiling the contents of the vocabulary happened in a two-fold approach:

- The editors consulted pre-existing glossaries, research publications, encyclopedias and dictionaries, for example "Homosaurus", "Words Matter" (both in English and Dutch), "Glossar für eine rassismussensible Sprache", "The Translate Hate Glossary", "La décolonisation, c'est maintenant !", "Woordenlijst Inclusief Taalgebruik" and "Begriffe über Behinderung von A bis Z". Next to the glossaries, scientific and journalistic publications were consulted for writing the contextual descriptions that capture aspects of etymology, historical use and debate about the selected terms. The editors checked the occurrence of terms in cultural heritage platforms like Europeana.eu to examine their existence in cultural heritage metadata. We also exploited the selected sources to identify suggestions for how to handle a contentious term or even alternative words to use instead. Overall, more than 170 sources were used in the creation of the vocabulary.
- The terms and their descriptions were collected, reflected upon and discussed during 12 community co-creation sessions that functioned as safe spaces for debating and

[4] Masschelein, A., Truyen, F., Taes, S., Pireddu, R., Van Mulder, J., & Stynen, A. (2024). Bias types and patterns: a typology applied to Europeana use cases. Online: https://pro.europeana.eu/files/Europeana_Professional/Projects/de_bias_vocabulary/DE-BIAS_bias_types_and_patterns_typology_applied_to_europeana_use_cases.pdf or https://doi.org/10.5281/zenodo.14514378 (both last accessed: 7 February 2025).

[5] Crenshaw, Kimberle. Mapping the Margins: Intersectionality, Identity Politics, and Violence against Women of Color. Stanford Law Review 43, no. 6 (1991): 1241–99. https://doi.org/10.2307/1229039.

discussing bias issues among allies. Four out of the eleven project partners were tasked with engaging these community groups.

- DFF - Deutsches Filminstitut & Filmmuseum addressed ethno-religious issues, concentrating on antisemitic language patterns in historical collections. The first workshop was organised together with researcher Lea Wohl von Haselberg from the Film University Potsdam-Babelsberg and took place during the conference "Vernetzte Bilder: Digitale Zugänge zum audiovisuellen Erbe des Holocaust"; the second community event was organised in collaboration with Bildungsstätte Anne Frank.
- The European Fashion Heritage Association (EFHA) targeted the domain of gender and sexual identity, collaborating with LGBTQIA+ activist groups in the UK and Italy, namely Queering Rome and Queer Britain, and collaborated closely with Dani Martiri from Queering Rome. These community events involved LGBTQIA+ working groups and tour guides from renowned museums like the Victoria and Albert Museum and the Tate.
- KU Leuven and the Netherlands Institute for Sound and Vision (NISV) focused on migration and the colonial past. KU Leuven engaged with the Congolese Kring in Belgium. In addition, a collaborative relationship with the University of Lubumbashi in the Democratic Republic of the Congo was initiated, carried out and facilitated by KADOC (KU Leuven Documentation and Research Centre on Religion, Culture and Society) together with the research team led by the Lubumbashi based historian Donatien Dibwe dia Mwembu. NISV reached out to Sharma Soerjoesing-Chin A Foeng to establish relationships with members of the Dutch Surinamese community.

Overall more than 60 community members and allies were involved. Due to the aim of having more than 600 terms in the final vocabulary, only a subset of terms could be discussed in-depth during the co-creation sessions.

Community engagement and co-creation sessions

We developed a Community Engagement Methodology for planning and evaluating community engagement activities with a focus on establishing and maintaining contact with communities and their allies as well as creating a respectful approach to the community work. While the specific setup and tools for the co-creation sessions were not predetermined, three main patterns of interaction scenarios naturally emerged:

- One strategy focused on the assessment of the topic of contentious or biassed metadata by searching in cultural heritage platforms like Europeana.eu and Deutsche Digitale Bibliothek or internal collection management databases either for contentious terms already in the vocabulary seed, prepared by the editorial team (cf previous

subsection), or for terms the community suggested and in both cases debating the findings.

- Similarly, existing descriptions of cultural heritage objects were presented for discussion on accuracy, inclusiveness and positionality. It was debated whether descriptions should try to faithfully represent history and reflect historic language and concepts or be more reflective and interpretive, balancing objectivity with subjectivity to cater to different points of view.
- In follow-up meetings, the selection of terms and their contextualising texts were brought back to the workshop groups and opened up for discussion to refine the vocabulary entries.

All exercises led to important insights on the communities' perception on where and how contextualisation should happen. It became apparent, that next to the direct use of contentious language - the focus of the vocabulary - poor representativeness is a common problem in cultural heritage descriptions, as the viewpoints and knowledge from the societies of origin are often missing. Several participants voiced the importance of contextualising the terms listed in the vocabulary instead of replacing or masking them as this would remove the true accounts of past discriminations and diminish the resilience of those who resisted them. The reflections and results of this work are part of the deliverable "D2.2 Community Interactions: Scenarios and Results".

Challenges

Several challenges were anticipated before the work on the vocabulary started or became apparent during the editorial process.

First and foremost, with the building of a multilingual vocabulary, terms can appear in various languages, but this does not imply that bias is simply translatable across languages. For example, the word 'queer' had a negative connotation in the English language context and was later appropriated by the community, while it entered the Italian language context relatively recently, only with a positive/empowering meaning. As a consequence the term is included in the English sub-vocabulary, but not in the Italian one. In a similar vein, terms may appear across several languages, but still require different contextualisation and suggestions for use with regard to the specific use and history in each language context. Let's consider "sapphic" in English and "saffico" in Italian. Both are not offensive terms per se but should only be used in accordance with preferences of the community members themselves. In Italian, the use as a noun is advised against, while this is not seen as an additional issue when using the term in English.

The existence of these discrepancies led to the separate development of five language-specific and independent subsets that together form the complete vocabulary, catering to maximum flexibility in the editing process. The editorial team and community work participants can

cross check, if a term they describe already is included in one of the other language subsets, but they are not obliged to do so. This way, we minimised the complexity of the editorial work. Additionally, this approach allowed us to keep the structure of the Google sheet created for collecting the terms and contextual descriptions as intuitive as possible. Making it mandatory to collaboratively work on cross-language unification of over 600 terms directly at this stage would have introduced disproportionate complexity to the process. The easier the collection and description of terms could be handled, the more time the editorial team had for the research and the community work. This said, we have the option to set up semantic relationships between the different language subsets in the knowledge graph. For example: 'Third world', 'Derde wereld' and 'Dritte Welt' carry the same meaning in all three language contexts; they are kept as separate entries in the knowledge graph with a dedicated link expressing their semantic relation. Some links in this regard have been set up already, but this work will mainly be targeted in future iterations of the graph. Our process thus supports an iterative, sustainable and flexible approach for the vocabulary editors to work independently without compromising expressivity.

This decision aligned rather well with two other realities that emerged from our editorial and community work and resulted in a quite significant imbalance of the vocabulary coverage across languages. The different thematic foci for the community work directly influenced thematic (im)balances across the different languages. I.e., the Dutch sub-vocabulary puts higher emphasis on terms from the domain migration and colonial past as the co-creation work with the Dutch speaking communities covered this topic, whereas the German sub-vocabulary has special emphasis on anti-semitism, because the German community work focused on the domain of ethno-religious identity. Furthermore, it became apparent that different countries or language regions have varying degrees of existing research in diversity, inclusion and equity in general and more specifically in the problem space of e.g. colonial history and discrimination in the form of glossaries. As a result, the different language versions of the vocabulary not only differ in thematic focus, but also in size.

The following three challenges on the other hand relate to the descriptions of contentiousness for the terms in the vocabulary:

- For one, these need to reflect the historical accuracy of terms, especially since the metadata to be examined describe cultural heritage collections and thus reflect on historical artefacts or potentially date back decades, even centuries, themselves. At the same time, the meaning of terms has changed over time (e.g. "Arier" in German) as has their use (e.g. "queer" which is a term re-appropriated by the LGBTQIA+ community). The descriptions of contentiousness need to take this historicity into account, so that the flagging of a term can happen independently from the date of creation of the data - which is often unknown.

- Moreover, we encountered terms used contentiously in one context, but not in another. Such ambiguous terms should not be flagged by the tool in every case, as it would be confusing or even obstructing for the user. About one quarter of the terms collected across all languages are used in contentious as well as non-contentious contexts, which led to including an additional filter mechanism in the tool, that - for those terms - considers the context of a term's occurrence before matching. One obvious example is "race" in English, which can refer to the contested concept of human races, but also to a bicycle race. During the collection of the vocabulary we asked for these ambiguous terms to be signaled in particular with notes stating "This term is used in a contentious as well as a non-contentious way and should not be flagged in all cases to avoid false positives." The descriptions of contentiousness must contain a detailed account on the specific uses that are problematic and ideally mention the non-problematic uses as well. If the non-problematic uses are too numerous to list, only the contentious uses are explained.
- In a similar vein, the presence of suggested terms in our vocabulary does offer an opportunity to begin redressing biased texts: when a contentious term is detected in the description of a cultural heritage object, this text could be augmented by the suggested alternative(s), offering for example the possibility to find a cultural heritage object when searching for these more appropriate alternative terms. This would, however, require great care and probably quite some new research, considering that the applicability of suggested terms vary depending on context - pretty much the same way that the contentiousness of many terms also depends on context.

Lastly, during the community workshops, one problem was often debated: participants noted a persistent omission of information which leads to incomplete descriptions and representations of their culture and history. This issue was prevalent especially in the research on cultural heritage platforms conducted for the themes gender and sexual identity (e.g. leaving out information about LGBTQIA+ relationships) and migration and colonial past (e.g. not using specific and correct vocabulary to describe cultural activities or circumstances). Often the cultural heritage objects were described from an uninformed and thus biased perspective from outside of the community or a general lack of adequate and representative language in the past makes these collections less accessible, i.e. the data cannot be queried successfully with search terms (be it contentious or adequate ones), because they are missing from the descriptions. Unfortunately this challenge cannot be taken up with a tool and vocabulary designed to merely detect bias and contentiousness based on occurrences of terms in existing metadata, but requires a more holistic rethinking of the approach to describing cultural heritage collections.

Documentation of the knowledge graph

Development of the model and overall structure

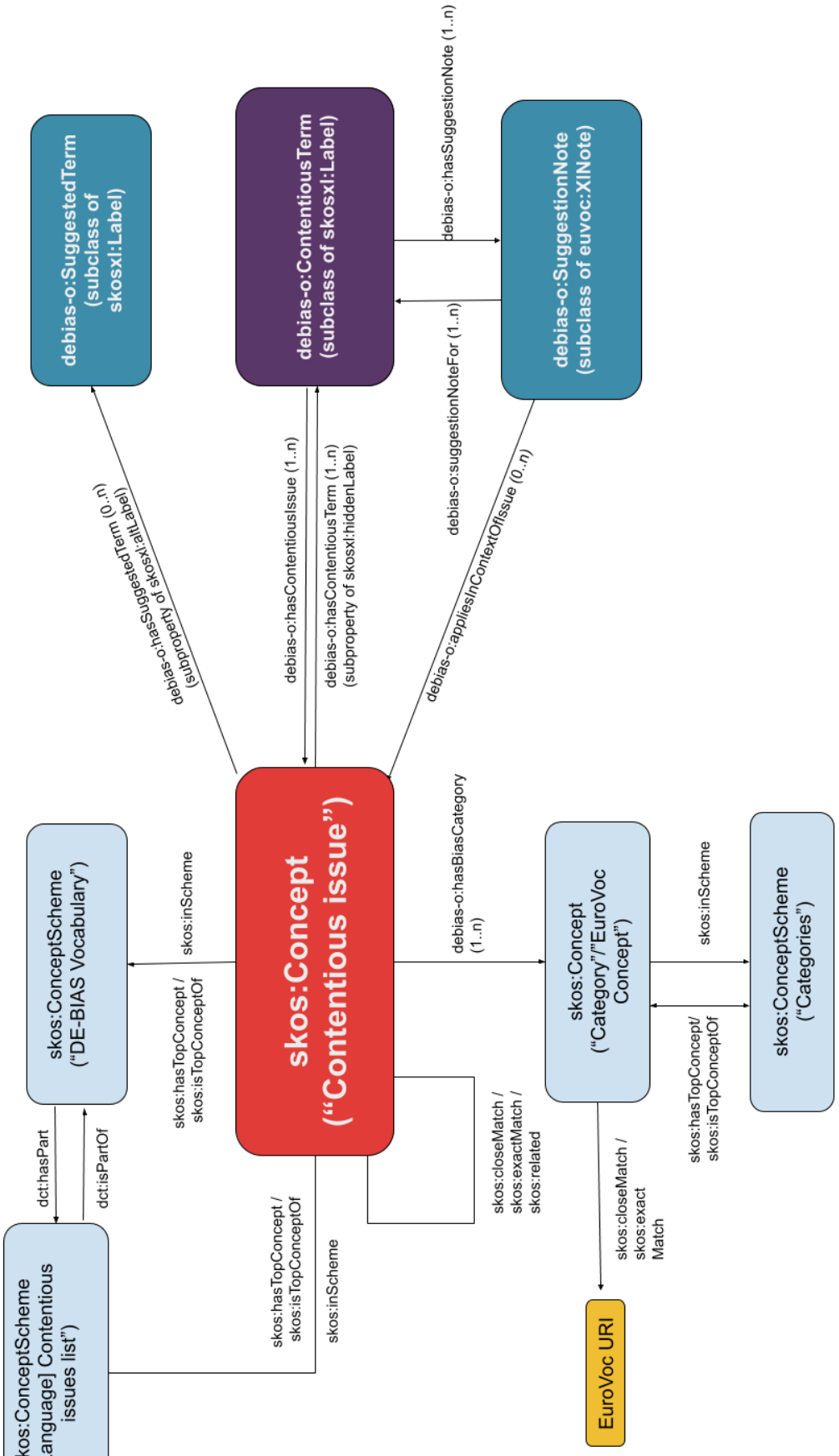
Because of the similar nature of contents, it was decided to align the envisioned knowledge graph for the DE-BIAS vocabulary with the work conducted by Cultural AI Lab in the Netherlands of transforming the Words Matter glossary into a machine-readable knowledge graph[6]. Their approach is partly based on the W3C SKOS model, which is intended to share and link knowledge organisation systems like thesauri, classifications and glossaries on the (semantic) web[7]. They decided to have a distinct resource for each term (represented as an instance of `skosxl:Label`) and then link those to the contentious issues (using a dedicated class `culco:ContentiousIssue`) describing the problematic nature of the one or more terms attached. The ability to link several terms to one contentious issue is especially beneficial when a noun and related adjectives are listed in the vocabulary, or when a male and female form of a term are included for gendered languages. Coming back to the challenges listed above, this approach to give each term its own identity - and not only the contentious issues - caters to the fact that terms appearing as problematic in more than one language can still need different contextualisation. These cases are stored with their distinct URI and issue in the graph while carrying the same literal form (with different language tags).

During the project, some deviations from the Words Matter model were made, mainly for reasons of sustainability and additional information that needed to be stored in the knowledge graph. As a consequence, the classes and properties introduced in the Words Matter schema were not directly re-used, but instead linked by using `owl:equivalentClass` or `owl:equivalentProperty`. Additionally, using VocBench called for a closer alignment with SKOS. In particular, we opted to directly represent issues as instances of `skos:Concept`. On the other hand, one clear deviation from SKOS is the absence of a `skos:prefLabel`. While this property is not mandatory in the model, most SKOS applications expect concepts to be provided with a preferred label. We opted to avoid the semantic conundrum of declaring problematic terms as preferred ones. Instead, `dcterms:title` was chosen to apply a nominator to the concepts.

The overview of classes and properties used in the DE-BIAS knowledge graph is laid out in the sketch below.

[6] Andrei Nesterov, Laura Hollink, Marieke van Erp, & Jacco van Ossenbruggen. (2023). cultural-ai/wordsmatter: Words Matter: a knowledge graph of contentious terms (v1.0.2) [Data set]. European Semantic Web Conference (ESWC), Hersonissos, Greece.
Zenodo. https://doi.org/10.5281/zenodo.7713157 (last accessed: 7 February 2025).

[7] Baker u. a. Key choices in the design of Simple Knowledge Organization System (SKOS). https://doi.org/10.1016/j.websem.2013.05.001 (last accessed: 7 February 2025).



The DE-BIAS knowledge graph is based on: Andrei Nesterov, Laura Hollink, Marieke van Erp, and Jacco van Ossenbruggen. (2023). culturalai/wordsmatter: Words Matter: a knowledge graph of contentious terms (v1.0.2) [Data set]. European Semantic Web Conference (ESWC), Hersonissos, Greece. Zenodo. https://doi.org/10.5281/zenodo.7713157 (CC-BY-SA)

At the core of the model lies the relation between contentious terms, represented by the class `debias-o:ContentiousTerm`, the contentious issue, providing the historical context and represented by the `skos:Concept`, the suggested terms (`debias-o:SuggestedTerm`) that could be used instead, and the `debias-o:SuggestionNote`, including a more general description of alternatives to using the contentious term. The contentious issue is the most extensive of these, containing a description of e.g. etymological information, discourses happening in different communities and a general overview, why a term (or several terms) are deemed to be problematic. Furthermore, sources used for gathering this information are listed (`dct:source`). The `debias-o:SuggestionNote` contains a recommendation on how to handle the contentious term. These can range from a suggested use of quotation marks to making aware that a term should be avoided completely, if possible. To streamline agreed upon wordings and allow for further grouping of terms, multilingual values (or literals) have been created for `debias-o:SuggestionNote` and re-used across the vocabulary - e.g. the note “Be as specific as you can instead of using generalising terms that are not appropriately representative.” is also applied to Dutch terms with the wording “Deze term is generaliserend; wees zo specifiek mogelijk.” The property `debias-o:suggestionNoteFor` allows for a quick overview which other terms in the vocabulary also carry this suggested handling.

Next to this “human readable” information in the form of literals, especially the `debias-o:ContentiousTerm` carries several properties meant for the processing with the bias detection tool (not depicted in the sketch above). Boolean values are applied with the properties `debias-o:isAmbiguous` and `debias-o:excludedFromDetection` and lead to triggering the LLM for examining the context a term is used in or complete exclusion of terms from processing, because they can’t be reliably detected at the moment. Nevertheless, those terms were regarded as valuable to keep in the vocabulary for educational and awareness purposes. Semantic relations are recorded as well: `skos:related` (matching issues within one language) and `skos:closeMatch` / `skos:exactMatch` (relating issues that treat the same problem space across languages or from external vocabularies) are used for non-hierarchical relations. `skos:ConceptScheme` is used to represent the whole vocabulary as well as the subsets in the five different languages. The categories of bias established in the Typology are also represented by `skos:Concept` in their own specific scheme, and linked from the contentious issue via the property `debias-o:hasBiasCategory`. In accordance with the concept of intersectionality, contentious issues are frequently assigned more than one category.

The last domain of information are administrative data that record creation and modification dates, version and rights information as well as deprecation of terms and issues.
The detailed application profile and the ontology of classes and properties are dscribed in the following chapter.

Application profile

Used namespaces

- The Simple Knowledge Organization System (SKOS) namespace
  - skos: <http://www.w3.org/2004/02/skos/core#>
- The SKOS Simple Knowledge Organization System eXtension for Labels (SKOS-XL) Namespace
  - skosxl: <http://www.w3.org/2008/05/skos-xl#>
- The DE-BIAS Ontology namespace
  - debias-o: <http://data.europa.eu/c4p/ontology#>
- The DE-BIAS Vocabulary namespace
  - debias: <http://data.europa.eu/c4p/data/>
- The DCMI Metadata Terms namespace
  - dct: <http://purl.org/dc/terms/>
- The OWL 2 Schema vocabulary (OWL 2) namespace
  - owl: <http://www.w3.org/2002/07/owl#>
- The RDF Concepts Vocabulary (RDF) namespace
  - rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

How to read the tables

The following section provides detailed information on classes and properties that are used in the application profile of the DE-BIAS Knowledge Graph. The information in the tables is structured as follows:

Name	Name used to refer to the class or property
Type	If it is a class or a property
URI	The URI by which the class or property is referenced
Usage in the DE-BIAS vocabulary	Information on the intention and scope of the element.
Range	If applicable, information about the type of resources that must be used in the range of a property
Occurrence	Information about obligation and repeatability (of a property)
Value type	Information about the value type that must be used in the range of a property (literal, date, boolean or reference)
Value	More specific information about values for the property
Comment	Further information (optional)

SKOS classes

Concept Scheme

Name	skos:ConceptScheme
Type	Class
URI	http://www.w3.org/2004/02/skos/core#ConceptScheme
Usage in the DE-BIAS vocabulary	A set of concepts, optionally including statements about semantic relationships between those concepts. In the DE-BIAS Knowledge Graph skos:ConceptScheme is used to group all skos:Concept for contentious issues of the DE-BIAS Vocabulary together. Additionally, a Concept Scheme is used to create groupings of all contentious issues belonging to one language.
Comment	

Properties used with skos:ConceptScheme

Name	dct:created
Type	Property
URI	http://purl.org/dc/terms/created
Usage in the DE-BIAS vocabulary	Date of creation of the resource.
Range	xsd:dateTime
Occurrence	0..n
Value type	Date
Value	ISO 8601 compliant string
Comment	

Name	dct:creator
Type	Property
URI	http://purl.org/dc/terms/creator
Usage in the DE-BIAS vocabulary	Name of the creator, e.g. “DE-BIAS project consortium” as the creator of the DE-BIAS Vocabulary.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute.

Name	dct:description
Type	Property
URI	http://purl.org/dc/terms/description
Usage in the DE-BIAS vocabulary	Description of the nature and contents of the Concept Scheme. Description may include but is not limited to: an abstract, a table of contents, a graphical representation, or a free-text account of the resource.
Range	rdfs:Literal

Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute.

Name	dct:hasPart
Type	Property
URI	http://purl.org/dc/terms/hasPart
Usage in the DE-BIAS vocabulary	Used to relate the Concept Scheme grouping e.g. all Concepts describing contentious issues (“Issues in the DE-BIAS Vocabulary”) to the relevant language-specific Concept Scheme (“English Contentious issues list” etc.).
Range	skos:ConceptScheme
Occurrence	0..n
Value type	Reference
Value	URI of the skos:ConceptScheme
Comment	

Name	dct:isPartOf
Type	Property
URI	http://purl.org/dc/terms/isPartOf
Usage in the DE-BIAS vocabulary	Used to relate e.g. the language-specific Concept Schemes (“English Contentious issues list” etc.) describing contentious issues to the overall Concept Scheme of the “DE-BIAS Vocabulary”.
Range	skos:ConceptScheme
Occurrence	0..n
Value type	Reference
Value	URI of the skos:ConceptScheme
Comment	

Name	dct:license
Type	Property
URI	http://purl.org/dc/terms/license
Usage in the DE-BIAS vocabulary	Information about the applicable license to specify re-use conditions.
Range	rdf:resource
Occurrence	0..n
Value type	URI of a term from a controlled rights vocabulary
Value	Reference
Comment	CC license or URI from rightsstatements.org

Name	dct:modified
Type	Property
URI	http://purl.org/dc/terms/modified

Usage in the DE-BIAS vocabulary	Date of latest modification of the resource.
Range	xsd:dateTime
Occurrence	0..n
Value type	Date
Value	ISO 8601 compliant string
Comment	

Name	dct:rights
Type	Property
URI	http://purl.org/dc/terms/rights
Usage in the DE-BIAS vocabulary	Information about rights held in and over the resource.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute

Name	dct:title
Type	Property
URI	http://purl.org/dc/terms/title
Usage in the DE-BIAS vocabulary	Name of the Concept Scheme.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	See also skosxl:prefLabel; specify by an ISO 639-1 language attribute.

Name	owl:versionInfo
Type	Property
URI	http://www.w3.org/2002/07/owl#versionInfo
Usage in the DE-BIAS vocabulary	Information on the version of the DE-BIAS Knowledge Graph.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Will be updated with each iteration.

Name	skos:hasTopConcept
Type	Property
URI	http://www.w3.org/2004/02/skos/core#hasTopConcept
Usage in the DE-BIAS vocabulary	Relates, by convention, a concept scheme to a concept which is topmost in the broader/narrower concept hierarchies for that scheme, providing an entry point to these hierarchies.
Range	skos:Concept
Occurrence	1..n
Value type	Reference
Value	URI of the skos:Concept
Comment	No broader/narrower concept hierarchies are used in the DE-BIAS Knowledge Graph.

Name	skosxl:prefLabel
Type	Property
URI	http://www.w3.org/2008/05/skos-xl#prefLabel
Usage in the DE-BIAS vocabulary	Name of the Concept Scheme.
Range	skosxl:Label
Occurrence	0..n
Value type	Reference
Value	URI of the skosxl:Label
Comment	See also dct:title

Concept

Name	skos:Concept
Type	Class
URI	http://www.w3.org/2004/02/skos/core#Concept
Usage in DE-BIAS Vocabulary	An idea or notion; a unit of thought. In the DE-BIAS Knowledge Graph, the Concept represents either a contentious issue that describes the history and problematic nature of the contentious terms attached to it, or it represents a category from the categories of bias laid out in "Bias types and patterns: a typology applied to Europeana use cases"[8].
Comment	The use of skos:Concept here is comparable to the class https://w3id.org/culco#ContentiousIssue in the Words Matter knowledge graph.

Properties used with skos:Concept

Name	dct:description
Type	Property
URI	http://purl.org/dc/terms/description

[8] Masschelein, A., Truyen, F., Taes, S., Pireddu, R., Van Mulder, J., & Stynen, A. (2024). Bias types and patterns: a typology applied to Europeana use cases.
Zenodo. https://doi.org/10.5281/zenodo.14514378.

Usage in the DE-BIAS vocabulary	Description of the contentious issue or the category of bias.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute; for reasons of user-friendly display on Europeana.eu, these values should not exceed 90 words.

Name	dct:modified
Type	Property
URI	http://purl.org/dc/terms/modified
Usage in the DE-BIAS vocabulary	Date of latest modification of the resource.
Range	xsd:dateTime
Occurrence	0..n
Value type	Date
Value	ISO 8601 compliant string
Comment	

Name	dct:source
Type	Property
URI	http://purl.org/dc/terms/source
Usage in the DE-BIAS vocabulary	A related resource from which the described resource is derived.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute; occurrence is 0..n but best practice is to supply at least one source.

Name	dct:title
Type	Property
URI	http://purl.org/dc/terms/title
Usage in the DE-BIAS vocabulary	A name given to the contentious issue.
Range	rdfs:Literal
Occurrence	1
Value type	Literal
Value	Free text

Comment	Instead of skos:prefLabel the DE-BIAS Knowledge Graph uses dcterms:title to apply a common nominator to the concepts representing the contentious issue; specify by an ISO 639-1 language attribute.

Name	debias-o:hasBiasCategory
Type	Property
URI	http://data.europa.eu/c4p/ontology#hasBiasCategory
Usage in the DE-BIAS vocabulary	Links a skos:Concept representing a contentious issue with one or more categories of bias.
Range	skos:Concept
Occurrence	1..n
Value type	Reference
Value	URI of the skos:Concept
Comment	

Name	debias-o:hasContentiousTerm
Type	Property
URI	http://data.europa.eu/c4p/ontology#hasContentiousTerm
Usage in the DE-BIAS vocabulary	Links a skos:Concept (representing a contentious issue) with the contentious terms that fall under the issue. A contentious issue is linked to one or more contentious terms.
Range	debias-o:ContentiousTerm
Occurrence	0..n
Value type	Reference
Value	URI of the debias-o:ContentiousTerm
Comment	Equivalent property to https://w3id.org/culco#hasContentiousLabel

Name	debias-o:hasSuggestedTerm
Type	Property
URI	http://data.europa.eu/c4p/ontology#hasSuggestedTerm
Usage in the DE-BIAS vocabulary	Links a skos:Concept (representing a contentious issue) with the suggested alternatives to use instead of the contentious terms. A contentious issue can be linked to one or more suggested alternatives.
Range	debias-o:SuggestedTerm
Occurrence	0..n
Value type	Reference
Value	URI of the debias-o:SuggestedTerm
Comment	The use of this property is comparable to to the property https://w3id.org/culco#hasSuggestedLabel in the Words Matter knowledge graph.

Name	owl:deprecated
Type	Property

URI	http://www.w3.org/2002/07/owl#deprecated
Usage in the DE-BIAS vocabulary	Indicates that a given entity has been deprecated.
Range	xsd:boolean
Occurrence	0..1
Value type	Boolean value
Value	True or false
Comment	When all contentious terms related to an issue are set as deprecated, the Concept representing the issue is set as deprecated as well. When a Concept is no longer linked to any contentious term, because they have been assigned to a different Concept, it is set as deprecated.

Name	skos:closeMatch
Type	Property
URI	http://www.w3.org/2004/02/skos/core#closeMatch
Usage in the DE-BIAS vocabulary	skos:closeMatch is used to link two concepts that are sufficiently similar that they can be used interchangeably in some information retrieval applications. In the DE-BIAS Knowledge Graph this property is also used to link similar contentious issues across language versions of the vocabulary.
Range	skos:Concept
Occurrence	0..n
Value type	Reference
Value	URI of the skos:Concept
Comment	Used to link between different languages.

Name	skos:exactMatch
Type	Property
URI	http://www.w3.org/2004/02/skos/core#exactMatch
Usage in the DE-BIAS vocabulary	skos:exactMatch is used to link two concepts, indicating a high degree of confidence that the concepts can be used interchangeably across a wide range of information retrieval applications. In the DE-BIAS Knowledge Graph this property is also used to link identical contentious issues across language versions of the vocabulary.
Range	skos:Concept
Occurrence	0..n
Value type	Reference
Value	URI of the skos:Concept
Comment	Used to link between different languages.

Name	skos:note
Type	Property
URI	http://www.w3.org/2004/02/skos/core#note

Usage in the DE-BIAS vocabulary	Used to capture longer versions of the descriptions stored with dct:description.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute.

Name	skos:related
Type	Property
URI	http://www.w3.org/2004/02/skos/core#related
Usage in the DE-BIAS vocabulary	Relates a concept to a concept with which there is an associative semantic relationship. In the DE-BIAS Knowledge Graph this property is used to link contentious issues that treat related topics within one language version of the vocabulary.
Range	skos:Concept
Occurrence	0..n
Value type	Reference
Value	URI of the skos:Concept
Comment	Used to link within one language; note that skos:relatedMatch was used before, but the use in DE-BIAS aligns more with skos:related.

SKOSXL classes

Label

Name	skosxl:Label
Type	Class
URI	http://www.w3.org/2008/05/skos-xl#Label
Usage in the DE-BIAS vocabulary	A special class of lexical entities.
Comment	

Properties used with skosxl:Label

Name	dct:created
Type	Property
URI	http://purl.org/dc/terms/created
Usage in the DE-BIAS vocabulary	Date of creation of the resource.
Range	xsd:dateTime
Occurrence	0..n
Value type	Date
Value	ISO 8601 compliant string

Comment	

Name	skosxl:literalForm
Type	Property
URI	http://www.w3.org/2008/05/skos-xl#literalForm
Usage in the DE-BIAS vocabulary	The property skosxl:literalForm is used to give the literal form of an skosxl:Label.
Range	rdfs:Literal
Occurrence	1
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute

DE-BIAS Ontology classes

Contentious Term

Name	debias-o:ContentiousTerm
Type	Class
URI	http://data.europa.eu/c4p/ontology#ContentiousTerm
Usage in the DE-BIAS vocabulary	Represents a term that is considered discriminatory, outdated or in other ways problematic.
Comment	Subclass of skosxl:Label

Properties used with debias-o:ContentiousTerm

Name	debias-o:excludedFromDetection
Type	Property
URI	http://data.europa.eu/c4p/ontology#excludedFromDetection
Usage in the DE-BIAS vocabulary	Indicates whether a term is generally used in a contentious as well as a non-contentious way.
Range	xsd:boolean
Occurrence	0..1
Value type	Boolean value
Value	True or false
Comment	

Name	debias-o:hasContentiousIssue
Type	Property
URI	http://data.europa.eu/c4p/ontology#hasContentiousIssue
Usage in the DE-BIAS vocabulary	Links a contentious term to a skos:Concept (representing the contentious issue) that explains why a term is considered discriminatory, outdated or in other ways problematic.
Range	skos:Concept

Occurrence	1..n
Value type	Reference
Value	URI of the skos:Concept representing the contentious issue.
Comment	Inverse property of debias-o:hasContentiousTerm

Name	debias-o:hasSuggestionNote
Type	Property
URI	http://data.europa.eu/c4p/ontology#hasSuggestionNote
Usage in the DE-BIAS vocabulary	Links a contentious term to a suggestion providing insights on what to consider when using the term.
Range	debias-o:SuggestionNote
Occurrence	1..n
Value type	Reference
Value	URI of the debias-o:SuggestionNote
Comment	

Name	debias-o:isAmbiguous
Type	Property
URI	http://data.europa.eu/c4p/ontology#isAmbiguous
Usage in the DE-BIAS vocabulary	Indicates whether a term should be excluded from detection with the DE-BIAS tool while still remaining in the Knowledge Graph.
Range	xsd:boolean
Occurrence	0..1
Value type	Boolean value
Value	True or false
Comment	See also skos:editorialNote

Name	debias-o:isNominalised
Type	Property
URI	http://data.europa.eu/c4p/ontology#isNominalised
Usage in the DE-BIAS vocabulary	Indicates whether a term is an adjective or verb and only contentious when used in its nominalised form.
Range	xsd:boolean
Occurrence	0..1
Value type	Boolean value
Value	True or false
Comment	The property is not yet in use.

Name	owl:deprecated
Type	Property
URI	http://www.w3.org/2002/07/owl#deprecated

Usage in the DE-BIAS vocabulary	Indicates that a given entity has been deprecated.
Range	xsd:boolean
Occurrence	0..1
Value type	Boolean value
Value	True or false
Comment	When all contentious terms related to an issue are set as deprecated, the Concept representing the issue is set as deprecated as well.

Name	skos:editorialNote
Type	Property
URI	http://www.w3.org/2004/02/skos/core#editorialNote
Usage in the DE-BIAS vocabulary	A note for an editor, translator or maintainer of the vocabulary. In the DE-BIAS Knowledge Graph the editorial note contains the information whether a contentious term should have contentious and non-contentious meanings.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute; see also debias-o:isAmbiguous.

Name	skosxl:literalForm
Type	Property
URI	http://www.w3.org/2008/05/skos-xl#literalForm
Usage in the DE-BIAS vocabulary	The property skosxl:literalForm is used to give the literal form of an Contentious Term.
Range	rdfs:Literal
Occurrence	1
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute

Suggested Term

Name	debias-o:SuggestedTerm
Type	Class
URI	http://www.w3.org/2004/02/skos/core#Concept
Usage in the DE-BIAS vocabulary	Represents a term that is suggested to use instead of the contentious term(s).
Comment	Subclass of skosxl:Label

Properties used with debias-o:SuggestedTerm

Name	skos:note
Type	Property
URI	http://www.w3.org/2004/02/skos/core#note
Usage in the DE-BIAS vocabulary	A general note, for any purpose.
Range	rdfs:Literal
Occurrence	0..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute.

Name	skosxl:literalForm
Type	Property
URI	http://www.w3.org/2008/05/skos-xl#literalForm
Usage in the DE-BIAS vocabulary	The property skosxl:literalForm is used to give the literal form of a Suggested Term.
Range	rdfs:Literal
Occurrence	1
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute.

Suggestion Note

Name	debias-o:SuggestionNote
Type	Class
URI	http://www.w3.org/2004/02/skos/core#Concept
Usage in the DE-BIAS vocabulary	Gives a general suggestion on how to handle a contentious term.
Comment	The use of debias-o:SuggestionNote is comparable to the class https://w3id.org/culco#Suggestion in the Words Matter knowledge graph.

Properties used with debias-o:SuggestionNote

Name	dct:modified
Type	Property
URI	http://purl.org/dc/terms/modified
Usage in the DE-BIAS vocabulary	Date of latest modification of the resource.
Range	xsd:dateTime
Occurrence	0..n
Value type	Date

Value	ISO 8601 compliant string
Comment	

Name	debias-o:appliesInContextOfIssue
Type	Property
URI	http://data.europa.eu/c4p/ontology#appliesInContextOfIssue
Usage in the DE-BIAS vocabulary	In the case that a term is linked to two distinct contentious issues (skos:Concept), this property links the suggestion notes for the term to the issues they apply to, if the distinction is needed.
Range	skos:Concept
Occurrence	0..n
Value type	Reference
Value	URI of the skos:Concept
Comment	

Name	debias-o:suggestionNoteFor
Type	Property
URI	http://data.europa.eu/c4p/ontology#suggestionNoteFor
Usage in the DE-BIAS vocabulary	Links a suggestion to the contentious terms it applies to.
Range	debias-o:ContentiousTerm
Occurrence	1..n
Value type	Reference
Value	URI of the debias-o:ContentiousTerm
Comment	Equivalent property of https://w3id.org/culco#suggestedFor

Name	rdf:value
Type	Property
URI	http://www.w3.org/1999/02/22-rdf-syntax-ns#value
Usage in the DE-BIAS vocabulary	Contains the literal value of the note.
Range	rdfs:Literal
Occurrence	1..n
Value type	Literal
Value	Free text
Comment	Specify by an ISO 639-1 language attribute and list identical suggestions across languages in separate rdf:value statements in one Suggestion Note.