

Annotation Guidelines: Bias in Job Advertisement

Martín Bórquez & Marcelo Mendoza

June 2025

Contents

1	Introduction	5
2	Summary	9
3	Type of Biases	11
3.1	Explicit Gender Bias	12
3.2	Implicit Gender Bias	14
3.3	Explicit Religion Bias	16
3.4	Explicit Disability Bias	16
3.5	Explicit Ethnicity Bias	17
3.6	Explicit Age Bias	18
3.7	Implicit Age Bias	19
4	Polisemantic Class	21
5	Others Class	23
6	Examples	25
7	References	31

Chapter 1

Introduction

This guide provides instructions for annotators to identify and label different types of bias in job advertisements. Its objective is to produce a high-quality, consistent dataset that encompasses both explicit and implicit biases. Annotators should adhere to the definitions and examples in this guide to maintain uniformity throughout the dataset.

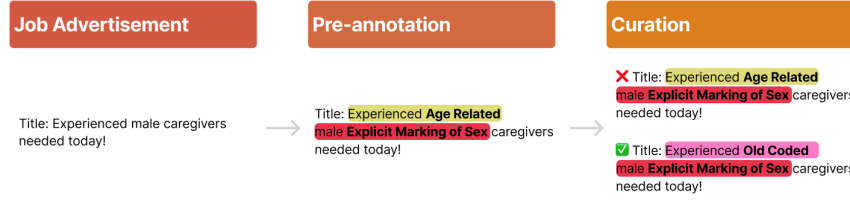
This document establishes the specific criteria for classifying various bias types in job advertisements. It supports the master’s thesis entitled “Detection and Classification of Bias in Job Advertisement Using Machine Learning”.

Job advertisement biases encompass any linguistic expressions within recruitment texts that can influence the perception of job opportunities based on characteristics such as gender, age, ethnicity, religion, or disability. These biases may manifest explicitly through overt statements (or group mentions) or implicitly via subtle language cues that, often unintentionally, favor or disadvantage certain groups.

This annotation guide is designed to create a **token-level annotated corpus that captures both explicit and implicit biases in job advertisements**. The resulting dataset will enhance Named Entity Recognition (NER) models, enabling them to detect nuanced bias signals that go beyond conventional keyword spotting. By annotating biases at both the word and span levels, this project aims to provide deeper insights into how specific lexical choices shape candidate perceptions and affect recruitment outcomes.

Annotation Process Overview

Prior to manual annotation, real job advertisements were processed using specialized lexicons to generate a word-level pre-annotation of bias. This pre-annotation covers 11 of the 13 identified bias categories but remains incomplete because it does not account for sentence structure or contextual meaning.



A key contribution expected from human annotators is the ability to discern bias based on context and appropriate spans. To facilitate this, annotators will receive complete job ads and be asked to examine specific sentences within each ad, allowing them to evaluate language in its full context.

The items to be annotated will consist of individual words or contiguous word spans extracted from real job advertisements. These advertisements originate from a diverse dataset encompassing multiple countries and industries.

The screenshot shows the 'Job Ads Annotation' interface. At the top, it displays 'ID: T-A33-S3-P1' and 'Time: 0:00:52'. A progress bar indicates 'Progress: 7 of 150 phrases' with '143 phrases remaining'. The main content area is divided into two panels:

- Texto Completo:** Displays the full job advertisement text, including the title 'Craftsman Associate. Company: We are an award-winning team of professionals...' and various requirements and benefits.
- Current Phrase:** Shows a specific phrase from the ad: 'construction : entry-level craftsman associate position we be a well-established specialty contractor in everett , look for 2 talented individual with an eye for detail ready to enroll in a paid craftsman-training program .'. Below this, it shows the 'Pre-annotation Template' and 'Your Current Annotation' with colored boxes highlighting specific words and phrases.

At the bottom, there is a 'How to Annotate' section with instructions and a 'Types of annotations' section listing various categories like 'Explicit Marking of Sex', 'Generic She', 'Generic He', 'Masculine Coded', 'Feminine Coded', 'Religion', 'Disability', 'Nationality Related', 'Ethnic Related', 'Gendered Neologism', 'Age Related', 'Young Coded', 'Old Coded', 'Polisemantic', and 'Others'.

In this work, **bias** is conceptualized as any language choice in a job advertisement that affects its perception by individuals or groups, depending on their protected attributes. Such biases can either enhance or diminish the appeal or sense of belonging for the individual or group to a certain

job. Other researchers address the idea that language-based biases can occur without overt or intentional discrimination, while some bias might discourage certain groups but not necessarily translate directly into illegal or explicit discriminatory practices (Heilman, 2012; Gaucher et al., 2011). Therefore, **bias in this context can be unconscious and does not always imply discrimination**, as their effect varies depending on the recipient and the specific circumstances of the bias.

Chapter 2

Summary

Task description: Annotators will review individual sentences drawn from real job advertisements, with each full ad available for context. For every sentence, they must identify and highlight any words or phrases that exhibit bias.

Labels

- Gender Bias: **Explicit Marking of Sex, Gendered Neologism, Generic He, Generic She, Masculine Coded, Feminine Coded.**
- Religion Bias: **Religion Related.**
- Disability Bias: **Disability Related.**
- Ethnicity Bias: **Nationality Related, Ethnic Related.**
- Age Bias: **Age Related, Young Coded, Old Coded.**
- **Polisemantic**
- **Others**

Considerations

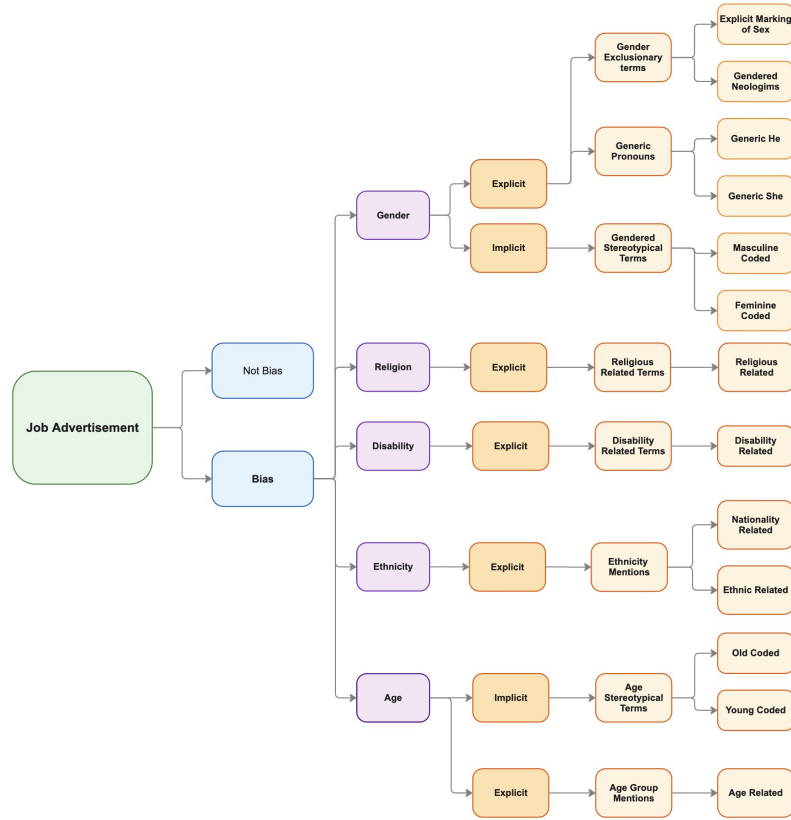
- The bias categories are designed to be mutually exclusive and should not overlap.
- As a general rule, annotators should highlight the longest continuous phrase that conveys the bias. For example, in the sentence “accommodation can be made for physical disability,” mark “physical disability” rather than just “disability.”
- Please note that there is a dedicated category for polysemous terms—see the Polisemantic Class section for details here.

- Annotators should take care when tagging biased language that appears in close proximity. In other words, if a sentence contains two words of the same bias category and each word qualifies on its own—each must be annotated separately.

Chapter 3

Type of Biases

In this section there is the definition of every type of bias of this research.



3.1 Explicit Gender Bias

Gender Exclusionary Terms

Exclusionary terms occur when a gender-neutral entity is described using gender-exclusive language. For instance, adding a gender-specific sub-word (e.g., “man”) to a gender-neutral occupational term (e.g., “police”) results in “policeman.” This construction implies that all police officers are men, thereby excluding women. Conversely, appending “woman” to “police” to form “policewoman” suggests that all police officers are women. The use of exclusionary terms has been shown to carry negative societal implications. Sex-biased wording can affect perceptions of a career’s attractiveness (Briere and Lanktree, 1983), and languages with gendered occupational terms have been associated with disproportionate labor force participation (Gay et al.,

2013).

Explicit Marking of Sex

The use of explicit sex demarcations in job advertisements constitutes a form of Gender-Exclusive Occupational Terms bias. This category covers instances where an inherently gender-neutral role or occupation is described using a word that unambiguously denotes one gender. Such markings often appear at the word level and clearly signal a specific gender.

Examples of Explicit Marking of Sex

- “We are seeking a **Chairman Explicit Marking of Sex** to oversee our board and represent the company at all industry forums.”
- “Join our growing team as a **businessman Explicit Marking of Sex** in the Sales Division, where you’ll drive revenue and forge key client relationships.”
- “Our manufacturing plant is expanding its **manpower Explicit Marking of Sex** and is looking for motivated individuals to fill assembly-line positions.”
- “The ideal **cameraman Explicit Marking of Sex** will travel on location to capture high-quality footage for our marketing campaigns.”
- “We’re hiring a professional **stewardess Explicit Marking of Sex** to ensure our VIP guests receive exceptional in-flight service.”

Gendered Neologism

Gendered Neologisms are newly coined, gender-specific terms that are emerging into mainstream usage. Although they share similarities with explicit marking of sex in that they exclude one gender, they differ by virtue of their novelty and evolving acceptance in everyday language. This type of bias is annotated at the word level, as it involves the creation of new exclusionary terms.

Examples: Man-bread, Man-sip, Man-bun, Girlboss, SheEO

Generic Pronouns

Pronouns typically correspond to the gender of their referents. However, when the referent is sex-indefinite, the pronoun is used in a generic sense, effectively generalizing gender onto a neutral subject. The most notable form of a generic pronoun sentence occurs when a pronoun’s referent is a sex-indefinite occupation. When a pronoun refers to an occupation rather than a sex-definite person (subject), it becomes generic.

Generic He

Generic He refers to instances where a sex-indefinite role or description is associated with a male pronoun. This use often reflects implicit gender bias by defaulting to a male reference when the subject’s gender is not specified. Due to its dependence on context, this bias is assessed at the sentence level.

Examples of Generic He Bias

- “A programmer must carry **his Generic He** laptop with **him Generic He** to work.”
- “How often does a programmer update **his Generic He** skills?”
- “We are looking for a project coordinator. **He Generic He** needs to be able to manage deadlines and liaise effectively with stakeholders.”

Not Examples of Generic He Bias

- “John, a programmer, always carries his laptop to work.”
- “David is our logistics coordinator. He manages shipments and tracks deliveries.”

Generic She

Generic She denotes instances where a sex-indefinite role or description is associated with a female pronoun. This usage may introduce bias by implying that a particular role should be associated with a female perspective when the role itself is gender-neutral. Like Generic He, this bias is evaluated within the context of the sentence.

Examples of Generic She Bias

- “A nurse should ensure that **she Generic She** gets adequate rest”
- “We are looking for a human resources manager. **She Generic She** needs to be able to develop recruitment strategies and handle employee relations.”
- “A consultant must carry **her Generic She** laptop with **her Generic She** to work.”

Not Example of Generic She

- “Angela is a rapper; her voice is suited for rapping.”
- “**He or she Polisemantic** must have at least three years of experience managing cross-functional project teams.”

3.2 Implicit Gender Bias

Subtle language choices that suggest a preference for one gender without explicitly naming it. In this instance we will be working mainly with words or sentences that have a strong stereotype associated with a gender in the context of work recruitment.

Gendered Stereotypical Terms

This category covers the inclusion of words or short phrases in job advertisements that carry gender stereotypes. Studies demonstrate that such wording can affect applicants' attitudes and choices depending on their gender (Gaucher et al, 2011). Since job ads use a formal style, these subtle signals are considered implicit bias.

Masculine Coded

Use of words associated with male stereotypes (e.g., “aggressive”, “dominant”) that subtly signal a male-oriented role or culture. Usually present at word level.

Examples of Masculine Coded

- “Thrive in a **high-pressure Masculine Coded**, **results-focused Masculine Coded** environment.”
- “Compete in a **fast-paced Masculine Coded** market with **competitive Masculine Coded** compensation.”
- “Deliver **superior performance Masculine Coded**.”
- “Be part of our **winning team Masculine Coded** and exceed targets.”
- “Excel in **high-stakes role Masculine Coded**.”
- “Contribute to a **strong, rapidly expanding organization Masculine Coded**.”

Feminine Coded

Use of words associated with female stereotypes (e.g., “supportive”, “compassionate”) that subtly signal a female-oriented role or environment. Usually present at word level.

Examples of Feminine Coded

- “Our **family-friendly environment Feminine Coded** promotes work-life balance for everyone.”
- “Join our **supportive, positive, and collaborative team Feminine Coded** culture.”
- “We appreciate candidates with a keen **eye for detail Feminine Coded**.”
- “We value **genuine effort Feminine Coded** and **personal growth Feminine Coded** in all roles.”
- “Our inclusive team thrives on **open communication and trust Feminine Coded**.”
- “Enjoy on-site **childcare support Feminine Coded** for working parents.”

3.3 Explicit Religion Bias

Religious Related Terms

Mentions of terms or groups directly and explicitly tied to a religion constitute a bias category in job advertisements, framing the text within a particular religious worldview. Such explicit references can immediately influence potential candidates according to their own beliefs. Although some mentions may be subtle, we treat any reference to a religion or belief system as a single bias class in job postings.

Religion Related

Mentions of religion in job advertisements can take many forms—from explicit faith-based requirements to subtle nods toward religious institutions. Regardless of how overt or understated they may be, any word or phrase that references a religion, belief system, or religious organization belongs in this category.

Examples of Religion Bias

- “Office Coordinator for our **faith-based community Religion** outreach programs.”
- “Seeking a **Chaplain Religion** to provide **spiritual care and counseling Religion** to hospital patients.”
- “Instructor for weekend **prayer and meditation workshops Religion**.”
- “Administrative assistant for **mosque services Religion** and **Islamic education Religion**.”
- “Coordinator for **Torah study classes Religion** at the **synagogue’s Jewish learning center Religion**.”
- “Organizer for **Diwali events Religion**.”

3.4 Explicit Disability Bias

Disability Related Terms

This category covers any words or phrases in job advertisements that reference disability—whether it’s explicit benefits (e.g., “disability insurance”) or non-discrimination clauses for candidates with impairments. Although most of these statements are intended as positive accommodations, they still influence how applicants with disabilities perceive and respond to the opportunity. Therefore, any mention of disability in a job posting is treated as a single bias class, since it can alter candidates’ behavior and expectations.

Disability Related

Terms reflecting disability bias might be as brief as the word “disability” or as elaborate as outlining specific conditions. You can find this bias in any section of a job ad.

Examples of Disability Bias

- “Comprehensive **disability insurance Disability Related** included in benefits.”
- “Facilities are fully **wheelchair accessible Disability Related** for all.”
- “Applicants needing **disability accommodations Disability Related** are encouraged.”
- “Hiring a caregiver for an adult with **cerebral palsy Disability Related**.”
- “Employee **disability support services Disability Related** available onsite.”

3.5 Explicit Ethnicity Bias

Ethnicity Mentions

This category covers any unambiguous mention of ethnicity in a job posting, whether in the company name, candidate requirements, or descriptive phrases. Such explicit ethnic references—like insisting on a specific nationality or calling out a particular heritage—can significantly influence who applies, so we define them as biased. While many attributes can signal ethnicity, this study focuses on two main types: nationality and other ethnic related terms. Keep in mind that any religious references should be classified under Explicit Religion Bias rather than here.

Nationality Related

Within the broader category of ethnic biases, we spotlight nationality bias because it frequently appears in job ads. Nationality bias includes any explicit reference to a specific nation, nationality, city, state, or province. However, references to continents or clusters of countries are excluded. Mentions of language are also not necessarily treated as nationality bias; their classification depends entirely on how they’re used.

Examples of Nationality Related

- “**Canadian Nationality Related** company seeking **Quebec-based Nationality Related** sales representatives only.”
- “**US citizens Nationality Related** only need apply for this position.”
- “Hiring exclusively **German nationals Nationality Related** for software engineering.”
- “**Silicon Valley Nationality Related** Start-up with more than 30 employees.”
- “**London-based Nationality Related** **UK residents Nationality Related** preferred for this marketing role.”

Ethnic Related

Any term or expression that evokes ethnic characteristics—consciously or unconsciously—apart from nationality. Examples include references to racial group, complexion, region of ancestral origin, or cultural lineage.

Examples of Ethnic Related

- “**Native English Ethnic Related** required.”
- “Applicants of **East Asian descent Ethnic Related** only need apply.”
- “Position open exclusively to **darker complexion Ethnic Related** models.”
- “Hiring only candidates of **Latinx heritage Ethnic Related**.”
- “Global offices with professionals from **diverse ethnic backgrounds Ethnic Related**.”
- “Be part of an **international team Ethnic Related** that values **cross-cultural insights Ethnic Related**”
- “Experience a work **culture Polisemantic** enriched by **worldwide perspectives Ethnic Related**”

3.6 Explicit Age Bias

Age Mentions

This category includes any direct or indirect reference to an applicant’s age group in a job advertisement. Whether it’s a clear requirement or a more subtle allusion, these mentions influence how candidates perceive their eligibility. Although specifying experience is often necessary, we mark every term or phrase that conditions applicant selection by age as explicit bias.

Age Related

In job advertisements, references to age can take many forms—ranging from explicit age requirements to subtle age cues woven into the job title or description.

Examples of Age Related

- “Applicants must be at least 21 years old **Age Related**.”
- “Seeking a well experienced **Age Related** project manager .”
- “We are a young team **Age Related** of professionals .”
- “We are searching for a mature senior executive **Age Related** for our energy company .”

3.7 Implicit Age Bias

Age Stereotypical Terms

This bias consists of any phrasing that relies on age stereotypes—such as endorsements of “digital natives” or appeals to “experienced professionals.” It can be woven into any part of the ad, from the company profile to linguistic choices in the benefits. Since it operates subtly through semantic nuance, it qualifies as implicit age bias. This is an implicit form of age bias, driven by meaning and context rather than clear-cut rules. We further subdivide this class into Young-Coded and Old-Coded language.

Young Coded

This category covers any linguistic choice in a job ad that specifically appeals to a younger audience. These cues aren’t meant to exclude older applicants; they simply aim to attract younger talent.

Examples of Young Coded

- “Office equipped with gaming consoles and smoothie bar **Young Coded**.”
- “Seeking energetic self-starters for our startup’s adrenaline-fueled culture **Young Coded**.”
- “Join our team of early-career innovators **Young Coded** and trendsetters **Young Coded**.”
- “Unlimited craft coffee and late-night hackathons every week **Young Coded**.”
- “Must be active on TikTok and social media channels **Young Coded**.”

Old Coded

This category encompasses phrases or wording that signal a preference for more mature candidates. Like Young-Coded terms, these expressions are designed to

draw in a specific age group rather than to push others away. Be careful not to conflate general formality with Old-Coded bias (e.g., “decades of experience” vs. everyday professional tone).

Examples of Old Coded

- “ Minimum 10 years Old Coded of Microsoft Office proficiency required . ”
- “ Senior accountant with extensive track record Old Coded . ”
- “ PhD degree mandatory Old Coded for all applicants . ”
- “ At least 15 years of leadership experience Old Coded expected . ”
- “ Seasoned marketing professionals with decades of expertise Old Coded sought . ”
- “ Candidates must possess at least 10 years of proven managerial experience Old Coded . ”

Chapter 4

Polisemantic Class

Context

Job advertisements are typically written in a formal register, where many terms exhibit polysemy—that is, they carry multiple senses, some of which may imply bias in other contexts while remaining neutral here. Because lexicon-based detectors lack the contextual awareness to distinguish these senses, they often overlook words that are harmless in a job ad but problematic elsewhere.

Definition

We define the **Polisemantic** class as all words that function neutrally within a job advertisement yet could convey bias in a different setting. Annotators must flag every instance of such polysemous vocabulary—regardless of lexicon matches—and confirm its unbiased usage in context.

Examples of Polisemantic

- “Fluent **English Polisemantic** required.”
- “Design **high-level Polisemantic** technical architecture.”
- “Collaborate with Bradley **Jr. Polisemantic**, our global partnerships advisor.”
- “**Evangalise Polisemantic** IT best practices across the organization.”
- “Serve as Team **Lead Polisemantic** for product launches.”
- “Promote a company **culture Polisemantic** among staff.”

Chapter 5

Others Class

Context

As part of this research, we carried out both theoretical and empirical analyses to uncover new types of bias in job advertisements. We recognize that additional or unexpected biases may surface—ones not addressed by the existing categories but appearing more frequently than anticipated. To accommodate these discoveries, we introduce a dedicated class that allows annotators to flag such cases for later review.

Definition

The Others class covers any bias or special case identified by annotators that does not fit within the predefined categories. This could include intersectional biases—when a term exhibits characteristics of more than one category (e.g. a mention both Masculine-Coded and Young-Coded). Other cases could be sexual orientation or socioeconomic status, and any novel bias instances spotted during annotation that merit further investigation.

Example of Other Bias

- “We do not discriminate on the basis of **face Ethnic Related**, **color Ethnic Related**, **religion Religion**, **nation of origin Nationality**, **sex Explicit Marking of Sex**, **age Age Related**, sexual preference **Others**, **disability Disability**, or any other protected class **Others**. ”

Chapter 6

Examples

List of examples of every class and how they should be annotated.

Examples of Young Coded

- "Office equipped with gaming consoles and smoothie bar **Young Coded**."
- "Seeking energetic self-starters for our startup's adrenaline-fueled culture **Young Coded**."
- "Join our team of early-career innovators **Young Coded** and trendsetters **Young Coded**."
- "Unlimited craft coffee and late-night hackathons every week **Young Coded**."
- "Must be active on TikTok and social media channels **Young Coded**."

Examples of Old Coded

- "Minimum 10 years **Old Coded** of Microsoft Office proficiency required . "
- "Senior accountant with extensive track record **Old Coded** . "
- "PhD degree mandatory **Old Coded** for all applicants . "
- "At least 15 years of leadership experience **Old Coded** expected . "
- "Seasoned marketing professionals with decades of expertise **Old Coded** sought . "
- "Candidates must possess at least 10 years of proven managerial experience **Old Coded** . "

Examples of Age Related

- "Applicants must be at least 21 years old **Age Related**."
- "Seeking a well experienced **Age Related** project manager."
- "We are a young team **Age Related** of professionals."
- "We are searching for a mature senior executive **Age Related** for our energy company."

Examples of Ethnic Related

- "Native English **Ethnic Related** required."
- "Applicants of East Asian descent **Ethnic Related** only need apply."
- "Position open exclusively to darker complexion **Ethnic Related** models."
- "Hiring only candidates of Latinx heritage **Ethnic Related**."
- "Global offices with professionals from diverse ethnic backgrounds **Ethnic Related**."
- "Be part of an international team **Ethnic Related** that values cross-cultural insights **Ethnic Related**."
- "Experience a work culture **Polisemantic** enriched by worldwide perspectives **Ethnic Related**."

Examples of Nationality Related

- "Canadian **Nationality Related** company seeking Quebec-based **Nationality Related** sales representatives only."
- "US citizens **Nationality Related** only need apply for this position."
- "Hiring exclusively German nationals **Nationality Related** for software engineering."
- "Silicon Valley **Nationality Related** Start-up with more than 30 employees."
- "London-based **Nationality Related** UK residents **Nationality Related** preferred for this marketing role."

Examples of Disability Bias

- “Comprehensive **disability insurance Disability Related** included in benefits.”
- “Facilities are fully **wheelchair accessible Disability Related** for all.”
- “Applicants needing **disability accommodations Disability Related** are encouraged.”
- “Hiring a caregiver for an adult with **cerebral palsy Disability Related**.”
- “Employee **disability support services Disability Related** available onsite.”

Examples of Religion Bias

- “Office Coordinator for our **faith-based community Religion** outreach programs.”
- “Seeking a **Chaplain Religion** to provide **spiritual care and counseling Religion** to hospital patients.”
- “Instructor for weekend **prayer and meditation workshops Religion**.”
- “Administrative assistant for **mosque services Religion** and **Islamic education Religion**.”
- “Coordinator for **Torah study classes Religion** at the **synagogue’s Jewish learning center Religion**.”
- “Organizer for **Diwali events Religion**.”

Examples of Feminine Coded

- “Our **family-friendly environment Feminine Coded** promotes work-life balance for everyone.”
- “Join our **supportive, positive, and collaborative team Feminine Coded** culture.”
- “We appreciate candidates with a keen **eye for detail Feminine Coded**.”
- “We value **genuine effort Feminine Coded** and **personal growth Feminine Coded** in all roles.”
- “Our inclusive team thrives on **open communication and trust Feminine Coded**.”
- “Enjoy on-site **childcare support Feminine Coded** for working parents.”

Examples of Masculine Coded

- "Thrive in a **high-pressure Masculine Coded** , **results-focused Masculine Coded** environment ."
- "Compete in a **fast-paced Masculine Coded** market with **competitive Masculine Coded** compensation ."
- "Deliver **superior performance Masculine Coded** ."
- "Be part of our **winning team Masculine Coded** and exceed targets ."
- "Excel in **high-stakes role Masculine Coded** ."
- "Contribute to a **strong, rapidly expanding organization Masculine Coded** ."

Examples of Generic She Bias

- "A nurse should ensure that **she Generic She** gets adequate rest"
- "We are looking for a human resources manager. **She Generic She** needs to be able to develop recruitment strategies and handle employee relations."
- "A consultant must carry **her Generic She** laptop with **her Generic She** to work."

Not Example of Generic She

- "Angela is a rapper; her voice is suited for rapping."
- "**He or she Polisemantic** must have at least three years of experience managing cross-functional project teams."

Examples of Generic He Bias

- "A programmer must carry **his Generic He** laptop with **him Generic He** to work."
- "How often does a programmer update **his Generic He** skills?"
- "We are looking for a project coordinator. **He Generic He** needs to be able to manage deadlines and liaise effectively with stakeholders."

Not Examples of Generic He Bias

- "John, a programmer, always carries his laptop to work."
- "David is our logistics coordinator. He manages shipments and tracks deliveries."

Examples of Explicit Marking of Sex

- “We are seeking a **Chairman Explicit Marking of Sex** to oversee our board and represent the company at all industry forums.”
- “Join our growing team as a **businessman Explicit Marking of Sex** in the Sales Division, where you'll drive revenue and forge key client relationships.”
- “Our manufacturing plant is expanding its **manpower Explicit Marking of Sex** and is looking for motivated individuals to fill assembly-line positions.”
- “The ideal **cameraman Explicit Marking of Sex** will travel on location to capture high-quality footage for our marketing campaigns.”
- “We're hiring a professional **stewardess Explicit Marking of Sex** to ensure our VIP guests receive exceptional in-flight service.”

Examples of Polisemantic

- “Fluent **English Polisemantic** required.”
- “Design **high-level Polisemantic** technical architecture.”
- “Collaborate with Bradley **Jr. Polisemantic**, our global partnerships advisor.”
- “**Evangelise Polisemantic** IT best practices across the organization.”
- “Serve as Team **Lead Polisemantic** for product launches.”
- “Promote a company **culture Polisemantic** among staff.”

Example of Other Bias

- “We do not discriminate on the basis of **race Ethnic Related**, **color Ethnic Related**, **religion Religion**, **nation of origin Nationality**, **sex Explicit Marking of Sex**, **age Age Related**, sexual preference **Others**, **disability Disability**, or any other protected class **Others**.”

Chapter 7

References

- Bhanumathi, P., Basu, S., & Babu, B. S. (2024). Artificial intelligence and machine learning- powered recruitment for smart hiring. In *Global Practices on Effective Talent Acquisition and Retention* (pp. 17–36). <https://doi.org/10.4018/979-8-3693-1938-3.ch002>
- Born, M. P., Taris, T. W., & Willemsen, T. M. (2010). “Perceptions of gender-focused or gender-neutral job advertisements: The effects of job characteristics, communal requirement, and sex of the applicant.” *European Journal of Work and Organizational Psychology*, 18(3), 279–305. <https://doi.org/10.1080/00224540903365422>
- Doughman, J., & Khreich, W. (2022). Gender bias in text: Labeled datasets and lexicons. *ArXiv*, abs/2201.08675.
- Frissen, R., Adebayo, K. J., & Nanda, R. (2023). A machine learning approach to recognize bias and discrimination in job advertisements. *AI & Society*, 38, 1025–1038. <https://doi.org/10.1007/s00146-022-01574-0>
- Gaucher, D., Friesen, J., & Kay, A. C. (2011). Evidence that gendered wording in job advertisements exists and sustains gender inequality. *Journal of Personality and Social Psychology*, 101(1), 109–128. <https://doi.org/10.1037/a0022530>
- Heilman, M. E. (2012) “Gender stereotypes and workplace bias.” *Research in Organizational Behavior*, 32, 113–135. <https://doi.org/10.1016/j.riob.2012.11.003>
- Kusner, M. J., Loftus, J. R., Russell, C., & Silva, R. (2017, March 20). Counterfactual fairness. In *Advances in Neural Information Processing Systems*, 2017-December (pp. 4067–4077). *arXiv.org*. <https://arxiv.org/abs/1703.06856>
- Liu, H., Jin, W., Karimi, H., Liu, Z., & Tang, J. (2021). The Authors Matter: Understanding and Mitigating Implicit Bias in Deep Text Classification. *Association for Computational Linguistics*, 74–85. <https://aclanthology.org/2021.findings-acl.7.pdf>

- Mulkar-Mehta, R., Hobbs, J., & Hovy, E. (2011). Granularity in natural language discourse. In J. Bos & S. Pulman (Eds.), *Proceedings of the Ninth International Conference on Computational Semantics (IWCS 2011)*. Association for Computational Linguistics. <https://aclanthology.org/W11-0143>
- Rudman, L. A., & Glick, P. (2001). Prescriptive gender stereotypes and backlash toward agentic women. *Journal of Social Issues*, 57(4), 743–762. <https://doi.org/10.1111/0022-4537.00239>
- Schneider, B. (1987). The people make the place. *Personnel Psychology*, 40(3), 437–453. <https://doi.org/10.1111/j.1744-6570.1987.tb00609.x>
- Smith, K., Davenport, B. L., Bickford, J. F., Abell, L., & Dooley, S. (2023). The effects of jargon in STEM job advertisements on genders. Paper presented at the 2023 ASEE Annual Conference & Exposition, Baltimore, Maryland. <https://doi.org/10.18260/1-2--44447>
- Tambe, P., Cappelli, P., & Yakubovich, V. (2019). Artificial intelligence in human resources management: Challenges and a path forward. *California Management Review*, 61(4), 15–42. <https://doi.org/10.1177/0008125619867910>