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**Tools and practices for LGBT+ inclusion in tertiary education:
the development of the *LGBT+ University Inclusion Index*
and its application to Italian universities**

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Tools and practices for LGBT+ inclusion in tertiary education: the development of the *LGBT+ University Inclusion Index* and its application to Italian universities

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Abstract

The literature provides evidence that lesbian, gay, bisexual and trans learners are often victims of homo-bi-transphobic discrimination in educational environments.

This paper outlines an index of LGBT+ inclusion for Universities. The index has a twofold aim: to help tertiary education institutions to assess their degree of inclusiveness, and to detect the level of LGBT+ inclusion in tertiary education. Starting from the existing LGBT+ inclusion indices like the Campus Pride Index and LGBT+ Inclusive Education Index, the LGBT+ inclusive university index refers to an extended set of indicators and is based on fuzzy logic techniques to measure inclusiveness (Zadeh, 1965, 1988).

Best practices in LGBTI+ inclusion, implemented by Italian universities and identified in this study, are highlighted with the aim of suggesting and recommending guidelines helpful to fighting homo-bi-transphobic discrimination in higher education institutions.

Keywords: *LGBT+ Inclusion University Index, Tertiary Education, Homotransphobic Discrimination, Alias Career, Fuzzy logic.*

1. Introduction

This paper investigates the capacity of universities to favour LGBT+ inclusion in academic life and is intended to contribute to the growing literature on the evaluation of the degree of inclusiveness of higher education institutions. Evaluating the degree of LGBTQI+ inclusion can also contribute to strengthening diversity in tertiary education institutions with multifaceted benefits on the learning environment, the students' learning experience and the prevention of stereotypes, cultural awareness and political participation with positive spillover effects on society (Smith and Schonfeld, 2000; Johnson and Lollar, 2002).

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Research into the impact of homo-bi-transphobic harassment reveals that students who belong (or are perceived to belong) to a sexual minority still experience daily victimisation at school and university (e.g. Ellis, 2009); they have lower educational expectations, and are more likely to have been affected by discrimination (Sansone 2019).

In order to measure LGBT+ inclusion, we selected a set of indicators and elaborated a model by using fuzzy logic (Zadeh, 1965, 1988) that will allow each university to assess its degree of LGBT+ inclusiveness. We then applied the model to measure the degree of LGBT+ inclusion of Italian universities. The choice of Italian universities is related both to their long historical tradition and their established place in the cultural life of the country (see e.g. the University of Bologna, founded in the eleventh century) and to the recent implementation of policies to enhance LGBT+ inclusion. Moreover, the Italian system is based mainly on public Universities, and University rankings have been published in the media for many years. However, in University rankings the LGBT+ inclusion dimension is overlooked.

To fill this gap, this paper addresses LGBT+ inclusion in Italian public universities. To this end, we carried out a survey of the 58 Italian public universities to identify the practices implemented to facilitate LGBT+ inclusion. The survey was carried out in March and April 2019 collecting the indicators to measure LGBT+ inclusiveness in universities with the support of six LGBT+ (or allied) student unions and in line with other relevant LGBT+ inclusion indices: *Campus Pride Index* and *LGBT+ Inclusive Education Index* (Avila, 2018; Garvey *et al.*, 2017; Garvey, Taylor, Rankin, 2015). The response rate was 100 per cent and data-processing started in May 2019. Fuzzy logic techniques (Zadeh, 1965) were adopted to develop the *LGBT+ Inclusive University Index* and to construct the first national ranking of public universities with regards to the level of LGBT+ inclusion. Finally, best practices in terms of the inclusion of sexual minorities, implemented by Italian universities and identified in this study, will be highlighted with the aim of suggesting and recommending guidelines to counter homotransphobic behaviour.

2. Institutional background

In January 2018, IGLYO - the International Lesbian, Gay, Bisexual, Transgender, Queer and Intersex (LGBTQI) Youth and Student Organization – launched the LGBTQI Inclusive Education Index at a meeting at the European Parliament backed by UNESCO, with the aim of providing an overview of the legislative European framework for LGBT+ inclusion in education. The IGLYO Index revealed that anti-discrimination law relating to education (with explicit mention of gender identity, expression, sexual orientation or variation in sex characteristics) had been adopted in 31 of 45 European Member States.

Moreover, the representation of lesbian, gay, bisexual, trans people in academic curricula appears to be limited or lacking (UNESCO, 2017) and university staff are rarely qualified (or trained) to prevent, reduce, manage or address this kind of discrimination (FRA, 2016). The IGLYO findings also showed that only four countries required training programmes for faculty on LGBT+ awareness, that only six of them collected national data on homo-bi-transphobic bullying, and that just 21 countries included LGBT+ content in educational curricula. In view of this, LGBT+ youth tend to hide their sexual orientation or their gender identity, conforming to social gender norms, and this has proven to have negative consequences for their psycho-physical well-being, academic performance and active participation to academic life (Koshiw *et al.*, 2018, Sansone, 2019).

Italian anti-discrimination law relating to education (Act no. 107, passed on 13 July 2015, known as the “law on good schooling”) requires the prevention of gender-based violence and all forms of discrimination in schools at every level, but does not mention sexual orientation or

gender identity. Furthermore, while some schools take the initiative to invite LGBT+ civil society organisations to promote inclusive knowledge of sexual identity (*Cassero Scuola* is one of the most important national projects in Italy in this connection), others work with movements and associations who promote more traditional family models (IGLYO, 2018, p. 92).

The procedure for the rectification of legal documents relating to gender transition in Italy takes an average of two years. To allow inclusion of trans students in tertiary education and improve their psychological well-being while waiting for the legal rectification to be completed, various policies have been adopted in Italian universities dating back to 2002, when the Split University Record/Double University Record was adopted by Turin University. It consisted of a paper document issued by the University to the applicants after the submission of legal documents confirming the start of their transition, to be presented at every request for identification (access to examinations, recording of examination results, library use, graduation applications, administrative procedures). The Double University Record was replaced in 2012 by the Alias Career, consisting of a confidential agreement between the applicant and the University assigning a temporary identity to be adopted until the rectification of gender in the legal documents has been completed. The University undertakes to issue a new student card to the applicant, with the chosen name, the surname and registration number. The Alias Career providing for a non-disclosure agreement is evidently more effective in protecting student privacy than other instruments and avoids any kind of public disclosure or outing. This procedure was recommended by the National Conference of Equal Opportunities Bodies of Italian Universities in 2019 together with similar provisions for employees and visiting staff and the introduction of training courses concerning the Alias Career, language, communication and other subjects connected to gender, addressed to faculty members, technical and administrative (TA) staff and students, so that all those who work and study in the academic community can learn how to relate to transgender people in the most respectful and appropriate way. The 'extended alias career' complying with these recommendations was first implemented by the University of Basilicata in 2019 and is currently adopted also by other Italian universities.

Despite these considerations, a limited number of studies have been carried out at national level, to develop and monitor policies to improve the climate in schools and universities for LGBT+ learners, faculty and staff (see e.g. Scandurra et al., 2018, Russo, 2018, Russo and Valeri, 2019, Graglia, 2019). Italian reports on discrimination in education do not monitor the incidence and impact of homo-bi-transphobic bullying, and sex education is considered to be an extracurricular activity in Italian schools. The only mapping of protection measures for trans students and staff in Italian universities was developed and disseminated in 2018:² its principal aim was to provide students and university employees (faculty members, technical and administrative staff) with a fast and free means to verify the access criteria in all Italian public universities. This initial monitoring and reporting process laid the foundation for the development of this study.

3. The survey

Since 2007, the Campus Pride Index³ is used as a national LGBT+ benchmarking tool for universities in the US to shape more inclusive academic communities. The free online map allows learners and all those interested in higher education to access a database of universities containing information on LGBT+ inclusion in the academic community.

A set of indicators to describe LGBTI+ inclusion in higher education institutions was constructed using the Campus Pride Index framework, the recommendations of the National

² www.universitrans.it

³ <https://www.campusprideindex.org/>

Conference of Equal Opportunities Bodies of Italian Universities (2019) and the IGLYO Inclusive Education Guidelines (2006, 2015). These indicators were then validated by means of brainstorming with six LGBT+ student unions responding to a dedicated call that the research group sent out to all national LGBT+ student unions.⁴

On the basis of these indicators we developed a pilot survey that was first tested in six universities (Bologna, Milan, Modena and Reggio Emilia, Naples, Pisa and Turin). The questionnaire⁵ was then modified following the feedback from the pilot phase. The final questionnaire consists of 14 questions relating to two main issues: the context and the Alias Career in each university in the academic year 2018-2019. The survey of the Equal Opportunities Bodies of 58 Italian public universities was carried out in March-April 2019, with a response rate of 100 per cent, and data-processing began in May 2019.

4. The fuzzy rule-based system

Fuzzy rule-based systems of the Mamdani-Assilian type (Van Broekhoven and De Baets, 2009) were adopted to develop the *LGBT+ Inclusive University Index* and to draw up the first national ranking of public universities relating to the level of LGBT+ inclusion. The system identifies the fuzzy logic inference flow from the input variables to the output variables. The fuzzification in the input interfaces translates crisp inputs into fuzzy values. The fuzzy inference takes place in rule blocks that contain the linguistic control rules. The outputs of these rule blocks are linguistic variables. The final defuzzification in the output translates fuzzy variables into crisp numbers. Figure 1 shows the structure of the fuzzy rule-based system including the input interface, the rule blocks and the output interface. The connecting lines symbolise the data flow.

4.1 Definition of variables

The questions in the survey were answered on a scale from 1 to 4, with 1 corresponding to the minimum level of inclusion and 4 to the maximum, to enable respondents to easily understand the ordinal scale. We defined the Base Variable Range of our initial inputs with values from 1 to 4. The only exception was for the *Bathrooms* and *Crime Reporting* variables that are defined on a scale of 0-1, representing non-availability or availability, respectively. Linguistic variables are used to translate real values into linguistic values. The possible values of a linguistic variable are not numbers but linguistic terms. Linguistic variables are defined for all inputs, outputs and intermediate variables. Membership functions are defined using a few definition points only.

All the inputs (with the exception of *Bathrooms* and *Crime Reporting* variables that are dichotomous) are described by three linguistic attributes: low, medium, high (see Figure 2). Each input variable of the fuzzy rule-based system is described by three triangular fuzzy numbers representing the values low, medium and high (see Figure 3). On a scale from 1 to 4 we chose the low triangular fuzzy number to be represented by the triplet (1, 1, 2.5), the medium triangular fuzzy number to be represented by the triplet (1, 2.5, 4), and the high triangular fuzzy number to be represented by the triplet (2.5, 4, 4).

It is important to point out that these values are useful for determining the membership values (ranging from 0 to 1) of each input in our fuzzy system. Answers are coded in an equidistant way on the scale (0, 1/2, 2/3, 1). In details:

⁴ The student unions taking part in the brainstorming phase were LGBT+Q, University of Bologna; Identità UniTe, University of Turin; ASU Scienze Politiche, University of Naples; MoRe Gay, University of Modena and Reggio Emilia; Glauco, University of Pisa, and Studenti Indipendenti Rete LINK, State University of Milan.

⁵ The questionnaire and list of variables included in the model are to be found in Tables A1 and A2 in the Appendix.

If the answer is 1, then the membership degree is 1 in “low”, 0 in “medium” and 0 in “high”
i.e. 1 is associated with the vector $(1,0,0)$;

If the answer is 2, then the membership degree is $1/3$ in “low”, $2/3$ in “medium” and 0 in “high”
i.e. 2 is associated with the vector $(1/3, 2/3, 0)$;

If the answer is 3, then the membership degree is 0 in “low”, $2/3$ in “medium” and $1/3$ in “high”
i.e. 3 is associated with the vector $(0, 2/3, 1/3)$;

If the answer is 4, then the membership degree is 0 in “low”, 0 in “medium” and 1 in “high”
i.e. 4 is associated with the vector $(0, 0, 1)$.

Figure 1. System layout of LGBT+ University inclusion index

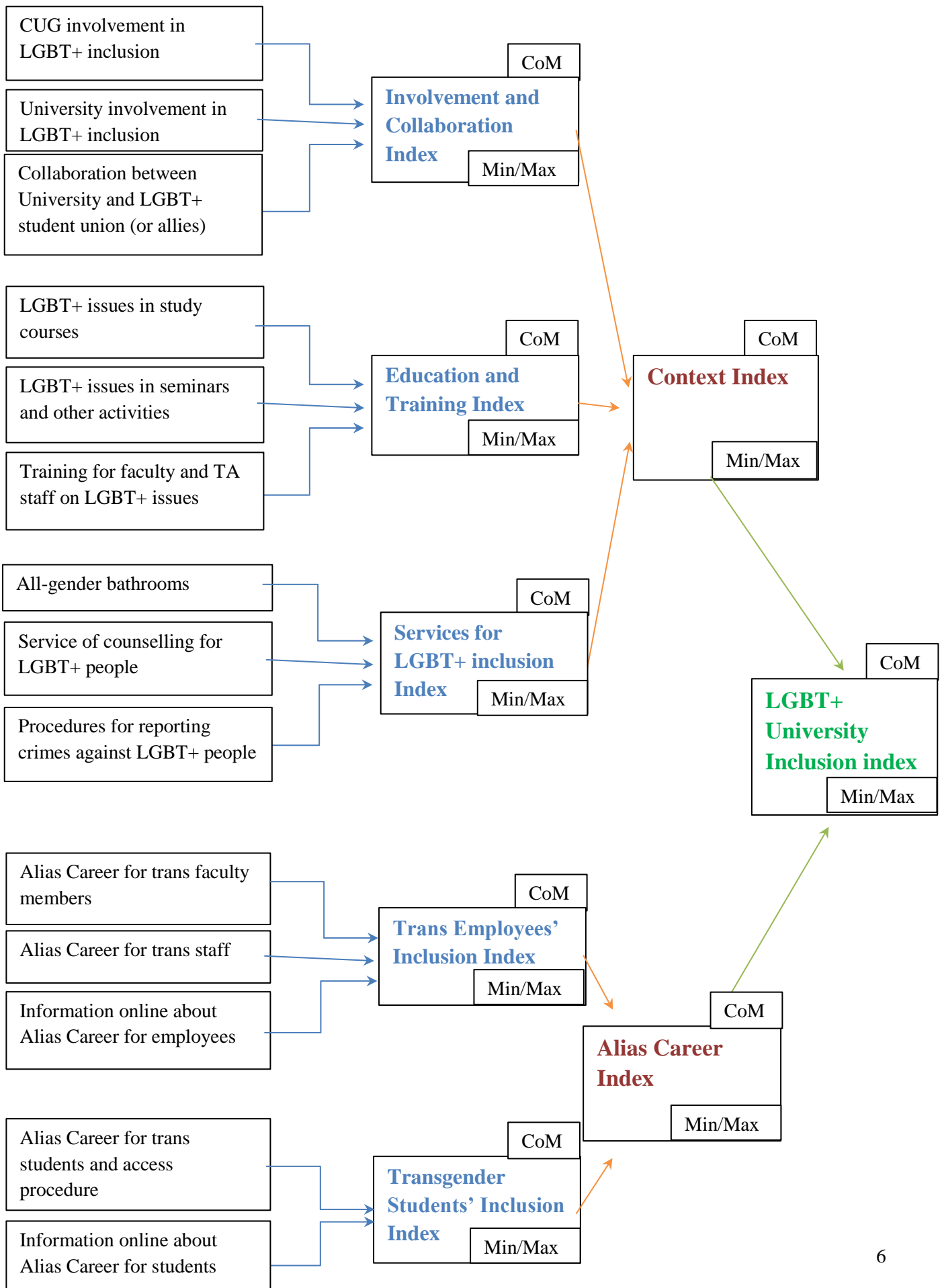
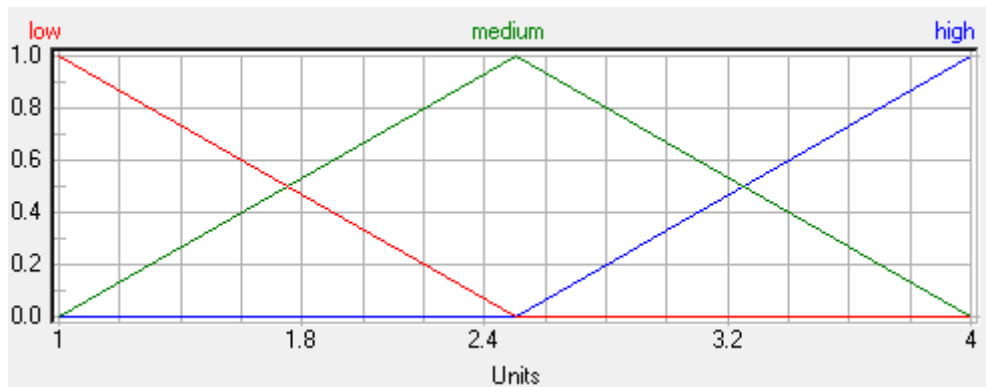


Figure 2. Input variable layout



The variable *University Involvement in LGBT+ Inclusion*, depicted in Figure 3, with a value of 3 in the questionnaire, is represented by the vector (0, 2/3, 1/3). The variable input described in the picture provides a visualization in terms of triangular fuzzy numbers of the response provided by respondents. The vector representation is generated in a visually attractive way. All the computation is carried out in membership degrees. The initial values 1, 2, 3, 4 are never used in the system. The cardinal scale used provides for the same distance among the elements (0, 1/3, 2/3, 1) and represents a similar improvement in the criterion. The individual answers are designed in such a way as to contribute to marginal improvement in the same way and are able to generate weights in a transparent manner. Whenever we go up one step in the scale we also go up one step in the criterion improvement. Moreover, when one variable is improved by one step, the final ranking of the University improves.

For the binary variables *Bathrooms* and *Crime Reporting*:

If they are not present then the membership degree is 1 in “false” and 0 in “true” i.e. “not present” is associated to the vector (1, 0);

If they are present then the membership degree is 0 in “false” and 1 in “true” i.e. “present” is associated to the vector (0, 1).

The first level of intermediate variables is described by five linguistic attributes: low, medium_low, medium, medium_high, high (see Figure 4). The second level of intermediate variables is described by seven linguistic attributes: very_low, low, medium_low, medium, medium_high, high, very_high (see Figure 5). The LGBT+ University Inclusion Index is described by nine linguistic attributes (see Figure 6).

4.2 The rule blocks

The rule blocks contain the control strategy of a fuzzy rule-based system. The 'if' part of the rule describes the situation for which the rules are designed. The 'then' part of the rule describes the response of the fuzzy system in this situation. The degree of support (DoS) is used to weight each rule according to its importance.

The processing of the rules starts with calculating the 'if' part. The operator type of the rule block determines which method is used. We choose the MIN operator of aggregation for the 'if' part and the MAX operator of aggregation for the 'then' part to enable all firing rules to be evaluated. Furthermore, we adopt the Centre of Maximum (CoM) method for the defuzzification, resulting in the ‘best compromise’ method (see Table A3 and Table A4 in the Appendix).

Figure 3. *University Involvement in LGBT+ Inclusion* variable layout, with a value of 3 in the questionnaire, represented by the vector: (0, 2/3, 1/3)

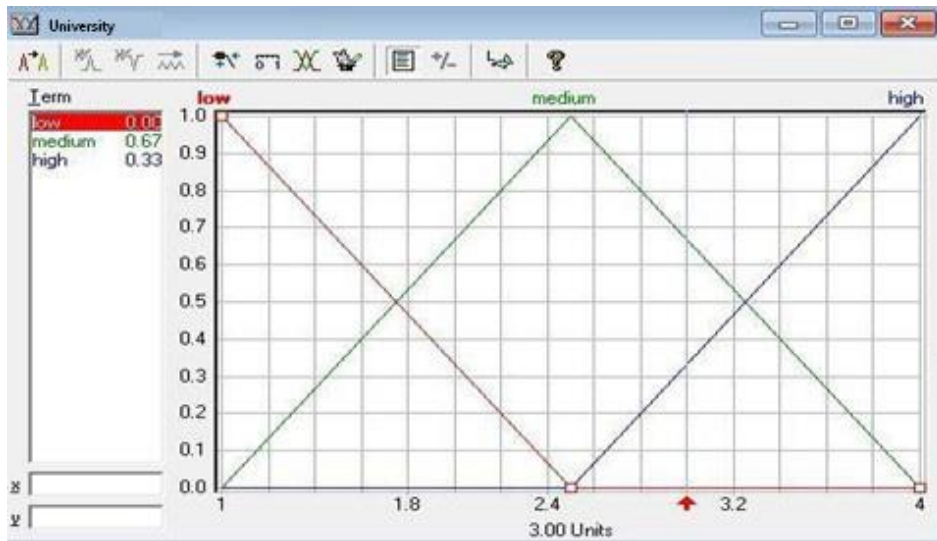


Figure 4. First level of intermediate variables layout

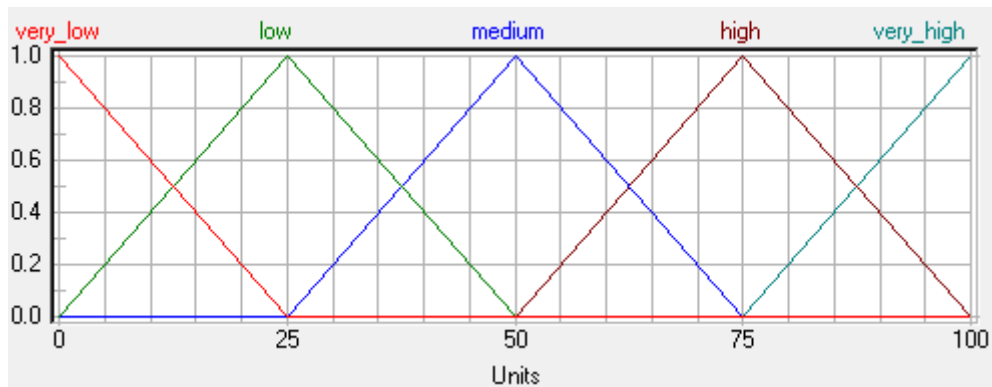


Figure 5. Second level of intermediate variables layout

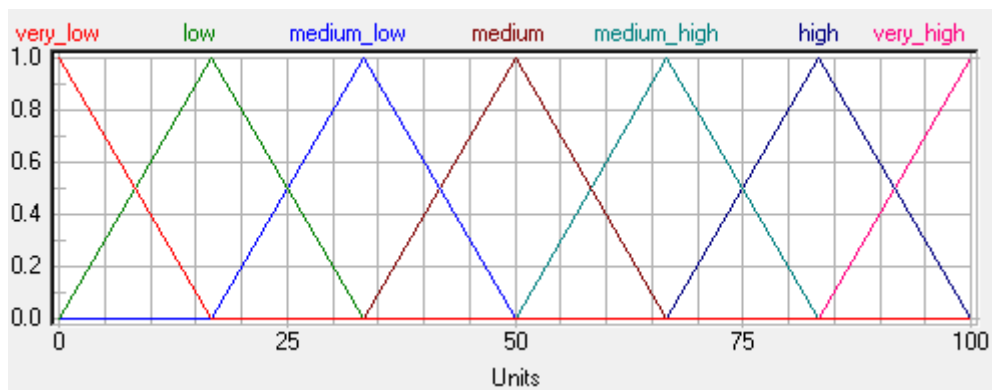
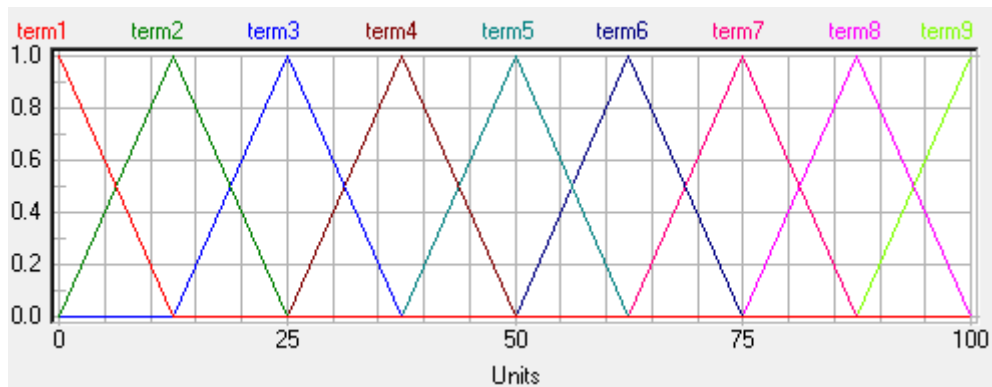


Figure 6. Output layout



Moreover, in order to compute the final LGBT+ University inclusion index, we need to specify the influence of each variable on the final output. We asked four LGBT+ student unions, the National Conference of Equal Opportunities Bodies of Italian Universities and four experts⁶ to offer their view on that. More in detail, we asked them, by e-mail, to give a score from 1 to 3 for every input in order to offer us their point of view on the impact that every input has on LGBT+ inclusion in university. The score 1 corresponds to “this input has a positive impact on LGBT+ inclusion”; the score 2 corresponds to “this input has more than a positive impact on LGBT+ inclusion”; finally, the score 3 corresponds to “this input is essential for LGBT+ inclusion”. We decided to apply the average of the scores attributed by all the respondents, in order to capture their opinions. Table 1 lists the initial inputs weighted by our respondents and the relative averages applied in the system.

In creating the Alias Career indicator, more weight is given to the variable that refers to students’ Alias Career than to the employees’ Alias Career. *Education*, *Services* and *Involvement* variables have a decreasing influence on the Context indicator. Relatively to the final step, *Context* has a higher impact on the LGBT+ inclusion university index than *Alias Career*.

5. Results

We applied our expert system to 58 Italian public universities. In Table 4 we report the final ranking. For each University, we also show the evaluation of the two intermediate outputs (*Context* and *Alias Career*) and on each intermediate variable (*Services*, *Education* and *Involvement* for the *Context* dimension and *Students’ Alias Career* and *Employees Alias Career* for the *Alias Career* dimension). In this way, each dimension and intermediate output can be evaluated. The last column shows the *LGBT+ University Inclusion Index* ranking.

⁶ The experts are: *Paolo Valerio*, full professor of Clinical Psychology at the Federico II University of Naples; Rector’s delegate for students with disabilities; Director of SInAPSi University Research Centre; Director of the Complex Operative Unity of the University Polyclinic of Naples; President of the Gender Identity Culture Foundation (GIC); President of the National Gender Identity Observatory (ONIG). *Lorenzo Bernini*, associate professor of political philosophy; Director of PoliTeSse Centre of Research; alias career handler of the University of Verona; *Anna Lorenzetti*, assistant professor of gender analysis and anti-discrimination law, integration policies and NGO law, gender-based violence: legal and psycho-social profiles; *Emidio Albertini*, assistant professor of agricultural genetics of the University of Perugia; alias career handler of the University of Perugia.

We are aware of the need to be careful in the interpretation of the results of the multi-layer fuzzy rule-based system. Given the lack of mathematical results on monotonicity for hierarchical models, we follow as far as possible the guidelines for non-hierarchical models (such as verifying the smoothness and the monotonicity of the fuzzy rule-based system). However, our findings are consistent with our experiential knowledge of the national university scenario.

The last five universities in Table 2, highlighted in red, are those that do not have any protection for LGBT+ inclusion (Catanzaro, Cassino, Reggio Calabria, Teramo, Molise). On the other hand, the University of Verona tops the ranking thanks to the Alias Career index. In fact, it has a *Non-disclosure Agreement* and publicises the Alias Career on the university website (Alias Career Inclusivity Index: 100/100). Moreover, thanks to the work of the Research Centre *PoliTeSse* of Politics and Theories of Sexuality, seminars, conferences and workshops on LGBT+ issues are regularly held, often with the collaboration of LGBT+ associations, and a counselling service for LGBT+ people is present. Currently no all-gender bathrooms are available and no staff training courses on LGBT+ inclusion are held (Context Index: 55.56/100).

Table 1. Weights given to initial inputs by LGBT+ Students Unions, experts and National Conference of University Equality Bodies.

		LGBT+ STUDENTS UNIONS					EXPERTS					National Conference of University Equality Organs	AVERAGE		
		Identità UniTe	MoRe Oxy	Scienze Politiche LGBTQI+	Giulco	AVERAGE	Paolo Valerio	Lorenzo Berrazi	Anna Lorenzetti	Emidio Albertini	AVERAGE				
LGBT+ UNIVERSITIES INCLUSION INDEX	CONTEXT INDICATOR	INVOLVEMENT	UNIVERSITY INVOLVEMENT	3	3	3	3	3	3	3	3	3	3		
			COLLABORATION	3	2	3	2	2.5	3	2	3	2	2.5	2	2.33
			CUG INVOLVEMENT	3	3	3	3	3	2	2	3	3	2.5	3	2.83
		85.0										8.0		53.7	
		EDUCATION	STUDY COURSES AND LGBT CURRICULA	1	2	3	3	2.25	2	2	3	2	2.25	3	2.50
			EMPLOYEE TRAINING	3	3	3	3	3	3	2	3	2	2.5	2	2.50
	ACTIVITIES		2	2	3	3	2.5	2	2	3	2	2.25	3	2.58	
	7.75.0										7.0	8.0	7.58		
	SERVICES	BATHROOMS	3	2	3	3	2.75	3	2	2	1	2	1	1.92	
		CRIME REPORTING	3	3	3	3	3	2	3	3	3	2.75	3	2.92	
		COUNSELLING	2	3	3	3	2.75	3	2	2	3	2.5	1	2.08	
	8.5.0										7.25.0	5.0	6.92		
24.75/27										22.25/27	21/27	19.67			
ALIAS CAREER INDICATOR	STUDENTS	ALIAS STUDENTS	3	3	3	3	3	3	3	3	3	3	2.08		
		ACCESS	2	3	3	3	2.75	3	3	1	3	2.5	3	2.75	
		SWEB ADVERTISING	2	3	3	2	2.5	3	2	3	2	2.5	2	2.33	
	8.25.0										8.0	8.0	7.17		
	STAFF AND PROFESSORS	ALIAS PROFESSORS	3	3	3	3	3	3	3	3	3	3	1	2.33	
		ALIAS TA STAFF	3	3	3	3	3	3	3	3	3	3	1	2.33	
		EWEB ADVERTISING	3	3	3	2	2.75	3	2	3	2	2.5	1	2.08	
	8.75.0										8.5.0	3.0	6.75		
	17/18										16.5/18	11/18	15.92		

The University of Basilicata was the first university in Italy to adopt a *Non-disclosure Agreement* on 18 May 2019, and like the University of Verona, it has a score of 100/100 in the Alias Career Index. It achieves the same overall score as the University of Verona in the Context Index, a higher score in involvement and a lower one for education.

In the third place we find the University Federico II Naples, characterised by a high score in *Education and Employee Training* thanks to the only PhD in Italy specialising in Gender Studies, an important list of seminars and projects on LGBT+ issues held in the academic year 2018/2019, and an obligatory training course for all technical and administrative staff on *The promotion of the culture of diversity*. University Federico II Naples is, however, lacking in the provision of services such as all-gender bathrooms and in the establishment of a reporting procedure for crimes against the LGBT+ community, as well as in the introduction of the *Non-disclosure Agreement*.

Universities with a score equal to “0” in *Employee Alias Career* are those that provide access to the Alias Career only for students. This is shown in the fourth position in the ranking in the case of the University of Turin.

The survey of the Italian universities allowed us to identify a wide range of good or best practices in the inclusion of LGBT+ leading to a better position in the ranking as shown in Table 2. They regard specific curricula on gender studies such as the Gemma Master (<http://www.lilec.it/gemma/welcome-to-gemma/>) a pilot project in the field of Women’s Studies and Gender Studies with the participation of a number of universities supported by the European Commission, including the University of Bologna, or dedicated courses such as the course on history of homosexuality taught at the Department of Art, Music and the Performing Arts at the University of Turin. Best practices also involve the teaching of courses to promote diversity devoted to managerial and technical-administrative staff (such as the University of Naples mandatory online training course held in 2018 or the course held in the same year attended by 84 employees of the University of Calabria on how to counter sexism and homophobia) and conferences and seminars on the subject. Other actions include counselling services, online platforms or networking to promote the culture of diversity.

6. Conclusions and policy implications

In this paper we investigated the capacity of universities to favour LGBT+ inclusion in academic life. To this end we developed the first LGBT+ University Inclusion Index and used it to rank Italian Universities. The indicators were developed with the collaboration of six LGBT+ student unions, four experts, and the National Conference of Equal Opportunities Bodies of Italian Universities. We then elaborated a model by using fuzzy logic (Zadeh, 1965, 1988).

We also developed sub-indicators for two dimensions: *Context Index* and *Alias Career Index*. These two dimensions were in turn divided into sub-indices (*Education and Employee Training, Involvement and Collaboration* and *Services* for Context Index; *Students’ Alias Career-Access Criteria* and *Employees Alias Career* for Alias Career Index). This division into sub-indices provides an overview of the degree of inclusiveness in the various dimensions.

Our analysis is related to the academic year 2018/2019. In first place we found the University of Verona followed by the University of Basilicata (both characterised by the maximum level of Alias Career inclusiveness, thanks to the adoption of the Non-disclosure Agreement). With regard to the *Context Index*, we highlight a list of best practices identified in our analysis with the aim of suggesting and recommending guidelines to fight homo-bi-transphobic discrimination in universities.

Table 2. LGBT+ University Inclusion Index – Ranking 2018/2019

Universities	Services index	Education index	Involment index	CONTEXT index	Trans Students Inclusion index	Trans Employees Inclusion index	ALIAS CAREER index	LGBT+ incusion index
Verona	75.00	58.33	58.33	55.56	100.00	100.00	100.00	66.67
Basilicata	75.00	16.67	83.33	55.56	100.00	100.00	100.00	66.67
Napoli Federico II	25.00	100.00	50.00	66.67	39.81	31.25	33.98	58.33
Torino	50.00	75.00	68.75	72.22	50.00	0.00	33.33	54.17
Pisa	75.00	50.00	75.00	66.67	44.14	0.00	29.43	51.34
Padova	50.00	16.67	91.67	61.11	50.00	0.00	33.33	50.00
Perugia	0.00	41.67	83.33	50.00	66.67	0.00	44.44	50.00
Calabria	75.00	75.00	68.75	72.22	0.00	0.00	0.00	50.00
Milano Bicocca	50.00	58.33	31.25	50.00	44.14	31.25	39.74	50.00
Trento	50.00	50.00	68.75	56.67	44.14	0.00	29.43	50.00
Salento	50.00	25.00	100.00	66.67	0.00	0.00	0.00	50.00
Bologna	75.00	66.67	50.00	61.11	44.14	0.00	29.43	47.07
Ferrara	50.00	33.33	50.00	45.83	50.00	41.67	44.44	46.87
Roma La Sapienza	75.00	16.67	50.00	44.44	44.14	0.00	29.43	45.83
Modena e Reggio Emilia	75.00	16.67	50.00	44.44	50.00	0.00	33.33	45.83
Bergamo	75.00	58.33	31.25	50.00	50.00	0.00	33.33	45.83
Camerino	50.00	16.67	50.00	33.33	50.00	75.00	66.67	45.83
Venezia IUAV	0.00	25.00	50.00	27.78	93.38	58.33	76.23	45.83
Bari	50.00	41.67	68.75	50.00	39.81	0.00	26.54	42.30
Cagliari	75.00	16.67	66.67	44.44	35.77	0.00	23.84	42.30
Salerno	16.67	50.00	68.75	50.00	35.77	0.00	23.84	42.30
Brescia	75.00	31.25	50.00	50.00	39.81	0.00	26.54	42.30
Milano	75.00	16.67	66.67	44.44	35.77	0.00	23.84	42.30
Siena	25.00	33.33	33.33	38.89	50.00	0.00	33.33	41.67
Udine	75.00	16.67	31.25	37.50	44.14	0.00	29.43	40.62
Torino	50.00	0.00	68.75	38.89	39.81	31.25	33.98	38.84
Firenze	16.67	16.67	66.67	37.50	35.77	0.00	23.84	36.89
Palermo	16.67	50.00	31.25	37.50	39.81	0.00	26.54	36.89
Urbino Carlo Bo	75.00	16.67	31.25	37.50	39.81	0.00	26.54	36.89
Pavia	50.00	16.67	50.00	33.33	35.77	0.00	23.84	34.18
Trieste	50.00	16.67	50.00	33.33	35.77	31.25	33.98	34.18
Venezia Cà Foscari	50.00	25.00	16.67	27.78	50.00	0.00	33.33	33.33
Insubria	16.67	0.00	50.00	27.78	44.14	41.67	44.44	33.33
Milano	50.00	16.67	41.67	27.78	35.77	31.25	33.98	29.80
Parma	50.00	31.25	16.67	27.78	35.77	0.00	23.84	29.80
Genova	50.00	16.67	31.25	27.78	39.81	0.00	26.54	29.80
Roma 2 Tor Vergata	75.00	0.00	16.67	27.78	39.81	0.00	26.54	29.80
Napoli L'Orientale	50.00	16.67	16.67	27.78	39.81	0.00	26.54	29.80
Bari	50.00	0.00	33.33	22.22	39.81	31.25	33.98	29.80
Chieti e Pescara	50.00	33.33	33.33	38.89	0.00	0.00	0.00	29.16
Sassari	50.00	0.00	33.33	22.22	39.81	0.00	26.54	26.34
Macerata	16.67	16.67	31.25	20.83	39.81	0.00	26.54	25.49
Marche	16.67	0.00	0.00	0.00	50.00	0.00	33.33	25.00
Messina	50.00	0.00	16.67	16.67	39.81	0.00	26.54	22.07
Catania	50.00	16.67	16.67	27.78	0.00	0.00	0.00	20.83
Piemonte Orientale	50.00	33.33	16.67	27.78	0.00	0.00	0.00	20.83
Tuscia	50.00	25.00	16.67	27.78	0.00	0.00	0.00	20.83
L'Aquila	16.67	0.00	16.67	11.11	35.77	0.00	23.84	17.88
Roma Tre	16.67	25.00	0.00	16.67	0.00	0.00	0.00	12.50
Foggia	50.00	16.67	0.00	16.67	0.00	0.00	0.00	12.50
Napoli Parthenope	0.00	16.67	0.00	11.11	0.00	0.00	0.00	8.33
Sannio	0.00	16.67	0.00	11.11	0.00	0.00	0.00	8.33
Campania Vanvitelli	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Catanzaro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Casino	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Teramo	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reggio Calabria	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Molise	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

In terms of policy implications, one of the main results of this study concerns the relevance of an operational anti-discriminatory plan involving all the identified dimensions rather than a single action: the introduction of the Alias Career, even if in its most inclusive version, is not sufficient in itself to guarantee inclusion for all sexual minorities. Evidence of this is to be found in the ranking of the Universities of Camerino (13) and Venice (18), despite their high scores in the Alias Career index.

We recommend an inclusion strategy aimed at improving all the sub-dimensions identified in this study: education, research and curricula gender-oriented, training courses on LGBT+ issues for faculty members and for technical and administrative staff, collaboration with LGBT+ students unions or allies, involvement of sexual minority associations in the organisation of anti-discriminatory activities and events, the provision of different services to protect and support sexual minorities, including the introduction of the Non-disclosure Agreement and provision for the Alias Career. It should be borne in mind that every university has its own specific characteristics: in the definition of an intervention strategy aimed at LGBT+ inclusion, the collaboration of LGBT+ associations is crucial as well as the capacity to devise new services and innovative policies, maintaining a fluid and open-minded approach (the same approach that led to the new version of the Alias Career).

Finally, we strongly recommend the introduction of the LGBT+ University inclusion index in the evaluation of universities, such as the *Biennial Report on the State of the University System and Research*, produced by ANVUR (National Agency for the Evaluation of University and Research) and the *Italian Universities Ranking* of CENSIS. The incorporation into these rankings of the degree of inclusiveness of Universities will allow potential students to make informed choices. As a possible extension of this study, we plan to re-evaluate the degree of LGBT+ inclusion in the academic year 2019-2020, also taking account of the effects of the pandemic.

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APPENDIX

Tables A1 and A2 report the sections of the questionnaire submitted to the presidents of the Equal Opportunities Bodies of Public Universities in Italy, for the Context and the Alias Career indices, respectively. Each question is associated with a variable, reported in square brackets. For example, question number 2 “*Have courses about gender subjects been organized?*” corresponds to the variable [curricula]. In this way, we obtain the first-level input variables of the fuzzy rule based system (see Figure 1).

The first-level variables are aggregated into the three dimensions that constitute the second-level variables: Education and Employee Training, [Education], Involvement and Collaboration [Involvement] and Services [Services]. In turn, the second-level variables are aggregated into the third-level variable *Context Index*.

Table A1. Context Index

1A. Education and Employee Training		[Education]
1. Have seminars or other activities about LGBT+ subjects been conducted?		[activities]
2. Have courses about gender subjects been organised?		[curricula]
3. Have training courses about LGBT+ issues for faculty and technical-administrative staff been held?		[training]
1B. Involvement and Collaboration		[Involvement]
1. Has the University been involved in LGBT+ inclusion activities?		[Universities]
2. Is there collaboration between the University and LGBT+ student unions?		[collaboration]
3. Has the CUG been involved in LGBT+ inclusion activities?		[CUG]
1C. Services		[Services]
1. Are all-gender bathrooms present inside the university?		[bathrooms]
2. Is there a LGBT+ counselling office?		[counselling]
3. Is a crime against LGBT+ reporting procedure in place?		[crime reporting]

Table A2. Alias Career Index

2A. Employee Alias Career		[Employee_inclusion]
1.	Is an Alias Career available for faculty members?	[alias_prof]
2.	Is an Alias Career available for technical and administrative staff?	[alias_staff]
3.	Is the Alias Career for employees specifically promoted on the university web site?	[Eweb_adv]
2B. Student Alias Career and Access Criteria		[Student_inclusion]
1.	What procedure, if any, is adopted to implement the Alias Career?	[aliasaccess]
2.	Is the Alias Career promoted on the university web site?	[Sweb_adv]

Tables A3 and A4 report the rule blocks for the Alias Career and the Context sub-indices. The rule block for the LGBT+ University Inclusion Index is not reported to save space but is available on request.

Table A3. Rules of the Rule Block for the *Alias Career index*

IF		THEN
Employee Inclusion_index	Student Inclusion_index	Alias Career_index
very_low	very_low	very_low
very_low	low	low
very_low	medium	medium_low
very_low	high	medium
very_low	very_high	medium_high
low	very_low	low
low	low	medium_low
low	medium	medium_low
low	high	medium
low	very_high	medium_high
medium	very_low	low
medium	low	medium_low
medium	medium	medium
medium	high	medium_high
medium	very_high	high
high	very_low	medium_low
high	low	medium
high	medium	medium_high
high	high	medium_high
high	very_high	high
very_high	very_low	medium_low
very_high	low	medium
very_high	medium	medium_high
very_high	high	high
very_high	very_high	very_high

Table A4. Rules of the Rule Block for the *Context index*

IF			THEN
Education_index	Involvement_index	Services_index	Context_index
very_low	very_low	very_low	very_low
very_low	very_low	low	low
very_low	very_low	medium	medium_low
very_low	very_low	high	medium_low
very_low	very_low	very_high	medium
very_low	low	very_low	low
very_low	low	low	low
very_low	low	medium	medium_low
very_low	low	high	medium
very_low	low	very_high	medium
very_low	medium	very_low	low
very_low	medium	low	medium_low
very_low	medium	medium	medium_low
very_low	medium	high	medium
very_low	medium	very_high	medium
very_low	high	very_low	low
very_low	high	low	medium_low
very_low	high	medium	medium
very_low	high	high	medium
very_low	high	very_high	medium_high
very_low	very_high	very_low	medium_low
very_low	very_high	low	medium_low
very_low	very_high	medium	medium
very_low	very_high	high	medium_high
very_low	very_high	very_high	medium_high
low	very_low	very_low	low
low	very_low	low	low
low	very_low	medium	medium_low
low	very_low	high	medium
low	very_low	very_high	medium
low	low	very_low	low
low	low	low	medium_low
low	low	medium	medium_low
low	low	high	medium
low	low	very_high	medium
low	medium	very_low	low
low	medium	low	medium_low
low	medium	medium	medium
low	medium	high	medium
low	medium	very_high	medium_high
low	high	very_low	medium_low
low	high	low	medium_low
low	high	medium	medium
low	high	high	medium_high
low	high	very_high	medium_high
low	very_high	very_low	medium_low
low	very_high	low	medium
low	very_high	medium	medium
low	very_high	high	medium_high

low	very_high	very_high	high
medium	very_low	very_low	low
medium	very_low	low	medium_low
medium	very_low	medium	medium_low
medium	very_low	high	medium
medium	very_low	very_high	medium
medium	low	very_low	low
medium	low	low	medium_low
medium	low	medium	medium
medium	low	high	medium
medium	low	very_high	medium_high
medium	medium	very_low	medium_low
medium	medium	low	medium_low
medium	medium	medium	medium
medium	medium	high	medium_high
medium	medium	very_high	medium_high
medium	high	very_low	medium_low
medium	high	low	medium
medium	high	medium	medium
medium	high	high	medium_high
medium	high	very_high	high
medium	very_high	very_low	medium
medium	very_high	low	medium
medium	very_high	medium	medium_high
medium	very_high	high	medium_high
medium	very_high	very_high	high
high	very_low	very_low	low
high	very_low	low	medium_low
high	very_low	medium	medium
high	very_low	high	medium
high	very_low	very_high	medium_high
high	low	very_low	medium_low
high	low	low	medium_low
high	low	medium	medium
high	low	high	medium_high
high	low	very_high	medium_high
high	medium	very_low	medium_low
high	medium	low	medium
high	medium	medium	medium
high	medium	high	medium_high
high	medium	very_high	high
high	high	very_low	medium
high	high	low	medium
high	high	medium	medium_high
high	high	high	medium_high
high	high	very_high	high
high	very_high	very_low	medium
high	very_high	low	medium
high	very_high	medium	medium_high
high	very_high	high	high
high	very_high	very_high	high
very_high	very_low	very_low	medium_low
very_high	very_low	low	medium_low
very_high	very_low	medium	medium

very_high	very_low	high	medium_high
very_high	very_low	very_high	medium_high
very_high	low	very_low	medium_low
very_high	low	low	medium
very_high	low	medium	medium
very_high	low	high	medium_high
very_high	low	very_high	high
very_high	medium	very_low	medium
very_high	medium	low	medium
very_high	medium	medium	medium_high
very_high	medium	high	medium_high
very_high	medium	very_high	high
very_high	high	very_low	medium
very_high	high	low	medium
very_high	high	medium	medium_high
very_high	high	high	high
very_high	high	very_high	high
very_high	very_high	very_low	medium
very_high	very_high	low	medium_high
very_high	very_high	medium	medium_high
very_high	very_high	high	high
very_high	very_high	very_high	very_high