Predicting the Results of Evaluation Procedures of Academics

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Abstract. *Background.* The 2010 reform of the Italian university system introduced the National Scientific Habilitation (ASN) as a requirement for applying to permanent professor positions. Since the CVs of the 59149 candidates and the results of their assessments have been made publicly available, the ASN constitutes an opportunity to perform analyses about a nation-wide evaluation process. *Objective.* The main goals of this paper are: (i) predicting the results of the ASN using only the information contained in the candidates CVs; (ii) identifying a small set of quantitative indicators that can be used to perform accurate predictions. *Approach.* To this end, Semantic Web technologies are used to extract and enrich the information in the applicants CVs, and machine learning methods are used to predict the results of the habilitation. *Results.* For predicting the success in the role of Associate Professor, our best models have an F-measure of 0.921. Overall, the models have F-measure values higher than 0.6 in 162/184 (88%) recruitment fields. The model based on the top 15 predictors have F-measure values higher than 0.6 in 153/184 (83.2%) recruitment fields. Similar results have been achieved for the role of Full Professor. *Evaluation.* The proposed approach outperforms the other models developed to predict the results of researchers evaluation procedures. *Conclusions.* Such results allow the development of an automated system for supporting both candidates and committees in the future ASN sessions.

1 Introduction

2 Acknowledgements

Table 1. Performance of SVM for professional *level I (Full Professor)*. Each row corresponds to a SD. The results are ordered in descending order with respect to the F-measure values. Non-bibliometric SDs have a gray background.

SD	P	R	FM	SD	P	R	FM	SD	P	R	FM	S	P	R	FM
09/D1	0.938	0.919	0.928	10/C1	0.759	0.825	0.790	13/A1	0.726	0.684	0.704	09/C2	0.630	0.630	0.630
11/D2	0.866	0.922	0.893	09/H1	0.780	0.799	0.789	04/A1	0.696	0.709	0.703	12/E3	0.676	0.590	0.630
11/E4	0.896	0.878	0.887	09/C1	0.833	0.750	0.789	01/A6	0.778	0.636	0.700	01/A3	0.658	0.602	0.629
11/D1	0.883	0.883	0.883	06/F1	0.743	0.839	0.788	14/A1	0.724	0.677	0.700	13/A5	0.611	0.647	0.629
10/F3	0.872	0.895	0.883	10/D1	0.774	0.800	0.787	10/D3	0.700	0.700	0.700	06/D2	0.574	0.692	0.628
06/F2	0.929	0.839	0.881	14/C2	0.778	0.792	0.785	12/C1	0.704	0.691	0.697	06/C1	0.594	0.655	0.623
06/L1	0.857	0.906	0.881	10/B1	0.778	0.790	0.784	01/A5	0.727	0.667	0.696	10/D4	0.563	0.675	0.614
08/D1	0.886	0.873	0.879	06/E1	0.747	0.824	0.783	01/A1	0.696	0.696	0.696	06/I1	0.574	0.659	0.614
05/I1	0.870	0.884	0.877	13/A4	0.771	0.794	0.783	12/C2	0.667	0.727	0.696	01/A2	0.585	0.640	0.611
09/E3	0.895	0.861	0.877	13/D1	0.805	0.759	0.781	05/D1	0.654	0.737	0.693	07/C1	0.650	0.565	0.605
12/B2	0.944	0.810	0.872	09/G1	0.875	0.700	0.778	01/A4	0.730	0.659	0.692	13/A2	0.611	0.598	0.604
07/F1	0.885	0.852	0.868	04/A3	0.761	0.795	0.778	11/A3	0.708	0.671	0.689	11/B1	0.633	0.576	0.603
06/N1	0.870	0.861	0.865	11/E1	0.781	0.770	0.776	11/A2	0.695	0.683	0.689	05/A2	0.545	0.667	0.600
08/A2	0.833	0.889	0.860	10/F2	0.809	0.745	0.776	11/A1	0.677	0.700	0.689	09/B1	0.600	0.600	0.600
12/D2	0.818	0.900	0.857	09/E4	0.763	0.784	0.773	06/D6	0.646	0.724	0.683	10/A1	0.625	0.571	0.597
11/E3	0.843	0.843	0.843	10/N1	0.754	0.793	0.773	06/E2	0.683	0.683	0.683	10/M2	0.607	0.586	0.596
05/G1	0.821	0.861	0.841	14/A2	0.804	0.740	0.771	13/D4	0.672	0.694	0.683	13/B4	0.585	0.600	0.593
13/B2	0.812	0.872	0.841	11/C4	0.814	0.729	0.769	05/A1	0.681	0.681	0.681	13/B5	0.615	0.571	0.593
13/B3	0.872	0.810	0.840	08/E2	0.778	0.761	0.769	11/C1	0.710	0.647	0.677	12/H3	0.625	0.556	0.588
01/B1	0.828	0.850	0.838	08/E1	0.813	0.722	0.765	13/C1	0.692	0.659	0.675	09/E1	0.586	0.586	0.586
02/C1	0.829	0.846	0.837	08/B3	0.750	0.771	0.761	03/C2	0.680	0.654	0.667	10/D2	0.600	0.571	0.585
04/A4	0.798	0.870	0.833	06/G1	0.740	0.781	0.760	10/G1	0.661	0.672	0.667	09/A1	0.636	0.538	0.583
14/C1	0.838	0.824	0.831	03/D1	0.746	0.770	0.758	06/D5	0.640	0.696	0.667	07/D1	0.563	0.600	0.581
06/D1	0.813	0.848	0.830	08/A1	0.756	0.756	0.756	07/E1	0.659	0.675	0.667	02/B2	0.591	0.565	0.578
05/B1	0.827	0.827	0.827	06/A2	0.724	0.778	0.750	12/G1	0.684	0.650	0.667	07/G1	0.565	0.591	0.578
11/A4	0.833	0.820	0.826	12/D1	0.814	0.695	0.750	07/B1	0.667	0.667	0.667	06/D4	0.542	0.605	0.571
07/H4	0.778	0.875	0.824	12/A1	0.734	0.758	0.746	09/B2	0.556	0.833	0.667	07/A1	0.543	0.576	0.559
06/A3	0.841	0.806	0.823	09/A2	0.727	0.762	0.744	03/A2	0.648	0.670	0.659	02/B1	0.541	0.571	0.556
11/E2	0.881	0.771	0.822	10/L1	0.735	0.750	0.742	13/A3	0.625	0.694	0.658	07/F2	0.545	0.545	0.545
06/M2	0.815	0.828	0.822	11/C3	0.784	0.702	0.741	03/C1	0.655	0.655	0.655	09/E2	0.526	0.556	0.541
06/B1	0.783	0.857	0.818	09/F1	0.714	0.769	0.741	08/F1	0.667	0.644	0.655	06/A1	0.536	0.536	0.536
07/H1	0.846	0.786	0.815	08/C1	0.766	0.711	0.737	13/D3	0.643	0.667	0.655	14/B1	0.556	0.500	0.526
02/B3	0.795	0.833	0.814	06/D3	0.719	0.753	0.736	05/C1	0.567	0.773	0.654	10/I1	0.588	0.476	0.526
06/M1	0.796	0.826	0.810	05/E2	0.686	0.791	0.735	12/B1	0.607	0.708	0.654	14/B2	0.556	0.476	0.513
08/A4	0.778	0.840	0.808	12/H2	0.733	0.733	0.733	12/F1	0.684	0.619	0.650	10/M1	0.514	0.500	0.507
05/B2	0.774	0.842	0.807	12/G2	0.682	0.789	0.732	10/N3	0.688	0.611	0.647	08/B1	0.500	0.500	0.500
09/G2	0.804	0.804	0.804	05/E1	0.722	0.743	0.732	09/A3	0.647	0.647	0.647	10/E1	0.524	0.478	0.500
12/E2	0.814	0.792	0.803	11/C5	0.736	0.726	0.731	05/H1	0.638	0.652	0.645	12/H1	0.538	0.467	0.500
14/D1	0.769	0.833	0.800	11/C2	0.722	0.736	0.729	12/E1	0.650	0.634	0.642	10/H1	0.500	0.462	0.480
03/D2	0.800	0.800	0.800	07/H2	0.727	0.727	0.727	07/B2	0.615	0.667	0.640	03/B2	0.462	0.462	0.462
05/H2	0.780	0.813	0.796	03/A1	0.700	0.750	0.724	09/D3	0.583	0.700	0.636	03/B1	0.500	0.417	0.455
10/F1	0.771	0.818	0.794	13/D2	0.735	0.694	0.714	07/H5	0.636	0.636	0.636	02/A2	0.509	0.406	0.452
09/F2	0.781	0.806	0.794	08/B2	0.718	0.700	0.709	09/D2	0.609	0.667	0.636	02/A1	0.405	0.458	0.430
06/F4	0.762	0.825	0.792	11/A5	0.697	0.719	0.708	04/A2	0.630	0.642	0.636	07/H3	0.417	0.417	0.417
08/A3	0.783	0.800	0.791	13/B1	0.691	0.723	0.707	09/B3	0.632	0.632	0.632	06/F3	0.400	0.333	0.364
06/H1	0.766	0.818	0.791	06/E3	0.750	0.667	0.706					05/F1	0.304	0.212	0.250

Table 2. Performance of SVM for professional *level II (Associate Professor)*. Each row corresponds to a SD. The results are ordered in descending order with respect to the F-measure values. Non-bibliometric SDs have a gray background.

SD	P	R	FM	SD	P	R	FM	SD	P	R	FM	S	P	R	FM
11/E4	0.903	0.940	0.921	08/A3	0.800	0.831	0.815	02/C1	0.726	0.789	0.756	10/N1	0.638	0.717	0.675
07/F1	0.894	0.938	0.916	09/B3	0.776	0.844	0.809	10/G1	0.710	0.807	0.755	13/D2	0.649	0.694	0.671
09/D1	0.878	0.935	0.906	12/A1	0.785	0.833	0.809	11/C4	0.711	0.802	0.754	13/D4	0.658	0.685	0.671
14/C2	0.889	0.917	0.903	09/G2	0.772	0.838	0.804	01/B1	0.729	0.781	0.754	06/D4	0.654	0.680	0.667
06/F2	0.896	0.896	0.896	11/C5	0.734	0.882	0.801	06/D3	0.735	0.773	0.753	04/A2	0.602	0.746	0.667
05/I1	0.876	0.908	0.892	12/C1	0.796	0.807	0.801	01/A4	0.702	0.807	0.751	10/E1	0.600	0.750	0.667
14/C1	0.872	0.909	0.890	03/D1	0.801	0.796	0.799	10/D3	0.722	0.783	0.751	06/D5	0.617	0.712	0.661
11/D2	0.898	0.879	0.888	05/B2	0.790	0.801	0.796	12/E3	0.684	0.831	0.750	09/A3	0.673	0.649	0.661
08/D1	0.866	0.906	0.886	06/E1	0.759	0.835	0.795	13/A4	0.704	0.798	0.748	09/G1	0.657	0.657	0.657
06/N1	0.827	0.932	0.877	09/D3	0.821	0.767	0.793	06/F1	0.706	0.791	0.746	04/A1	0.620	0.662	0.641
11/D1	0.848	0.906	0.876	08/B3	0.807	0.780	0.793	01/A5	0.774	0.719	0.745	06/E3	0.627	0.653	0.640
12/D2	0.868	0.868	0.868	05/A1	0.739	0.855	0.792	03/B1	0.703	0.790	0.744	01/A2	0.627	0.646	0.637
05/G1	0.838	0.892	0.864	06/D1	0.757	0.830	0.792	12/G2	0.750	0.733	0.742	10/M2	0.617	0.659	0.637
06/L1	0.819	0.906	0.860	09/H1	0.762	0.823	0.791	05/H1	0.683	0.808	0.740	05/F1	0.656	0.615	0.635
11/E2	0.849	0.861	0.855	05/E2	0.728	0.863	0.790	06/A4	0.683	0.804	0.739	07/H4	0.579	0.688	0.629
08/C1	0.840	0.870	0.855	11/A1	0.760	0.821	0.790	05/C1	0.694	0.789	0.738	07/E1	0.600	0.652	0.625
10/F1	0.810	0.898	0.852	12/G1	0.784	0.795	0.789	13/A1	0.707	0.771	0.737	13/B4	0.606	0.642	0.623
12/E1	0.831	0.873	0.851	08/E1	0.762	0.816	0.788	03/A1	0.692	0.783	0.735	10/M1	0.582	0.667	0.622
05/H2	0.823	0.872	0.846	11/A5	0.752	0.828	0.788	14/A1	0.667	0.814	0.733	11/E1	0.632	0.605	0.618
06/A2	0.804	0.889	0.844	14/B1	0.742	0.833	0.785	09/A2	0.688	0.786	0.733	07/H1	0.581	0.643	0.610
11/A4	0.798	0.896	0.844	06/C1	0.750	0.821	0.784	12/E2	0.717	0.750	0.733	11/B1	0.570	0.654	0.609
06/M1	0.807	0.883	0.843	12/F1	0.760	0.809	0.784	08/F1	0.681	0.788	0.730	01/A1	0.566	0.652	0.606
02/B3	0.806	0.883	0.843	05/A2	0.771	0.794	0.783	11/C2	0.696	0.764	0.729	12/H2	0.650	0.565	0.605
09/F1	0.836	0.848	0.842	11/C1	0.714	0.866	0.783	13/B1	0.699	0.752	0.724	02/B1	0.616	0.588	0.602
08/A2	0.846	0.830	0.838	06/A1	0.740	0.828	0.782	10/D4	0.676	0.780	0.724	10/H1	0.538	0.648	0.588
05/B1	0.801	0.880	0.838	11/A2	0.735	0.826	0.778	12/B2	0.731	0.717	0.724	13/C1	0.553	0.627	0.587
12/B1	0.810	0.867	0.838	07/B1	0.783	0.774	0.778	03/C2	0.705	0.738	0.721	03/B2	0.614	0.563	0.587
06/M2	0.817	0.860	0.838	13/D1	0.750	0.806	0.777	07/B2	0.663	0.788	0.720	10/I1	0.574	0.596	0.585
10/C1	0.796	0.882	0.837	09/C2	0.740	0.817	0.777	11/C3	0.655	0.796	0.719	13/A2	0.613	0.553	0.582
10/D1	0.813	0.862	0.837	11/A3	0.708	0.857	0.776	07/G1	0.698	0.732	0.714	09/B1	0.615	0.533	0.571
04/A4	0.794	0.883	0.836	06/I1	0.766	0.787	0.776	13/A3	0.688	0.736	0.711	14/B2	0.514	0.632	0.567
13/B3	0.815	0.852	0.833	06/E2	0.730	0.824	0.774	07/C1	0.690	0.727	0.708	07/H3	0.517	0.625	0.566
06/B1	0.807	0.861	0.833	08/B2	0.788	0.759	0.774	02/B2	0.677	0.739	0.707	10/F3	0.530	0.603	0.565
14/D1	0.828	0.833	0.831	10/F2	0.727	0.824	0.772	09/D2	0.706	0.706	0.706	10/D2	0.520	0.609	0.561
09/E2	0.800	0.865	0.831	09/E1	0.778	0.764	0.771	07/D1	0.663	0.740	0.699	07/F2	0.545	0.571	0.558
12/D1	0.800	0.862	0.830	09/E3	0.764	0.776	0.770	08/A4	0.672	0.722	0.696	10/N3	0.521	0.581	0.549
05/E1	0.788	0.876	0.830	08/A1	0.753	0.784	0.768	10/L1	0.664	0.722	0.692	01/A6	0.536	0.556	0.545
10/B1	0.776	0.890	0.829	09/C1	0.761	0.773	0.767	06/D6	0.652	0.737	0.692	07/A1	0.500	0.571	0.533
13/B2	0.837	0.818	0.828	06/G1	0.754	0.781	0.767	12/C2	0.692	0.692	0.692	13/A5	0.486	0.472	0.479
09/F2	0.810	0.835	0.822	04/A3	0.705	0.833	0.764	10/A1	0.657	0.724	0.689	08/B1	0.500	0.455	0.476
06/F4	0.784	0.859	0.820	06/H1	0.720	0.808	0.761	12/H3	0.675	0.701	0.688	06/F3	0.563	0.360	0.439
11/E3	0.819	0.819	0.819	13/B5	0.731	0.792	0.760	03/C1	0.689	0.676	0.682	07/H5	0.368	0.467	0.412
06/A3	0.821	0.815	0.818	14/A2	0.755	0.763	0.759	03/A2	0.655	0.708	0.681	02/A2	0.500	0.185	0.270
13/D3	0.773	0.866	0.817	05/D1	0.729	0.790	0.758	09/A1	0.649	0.709	0.678	12/H1	0.261	0.273	0.267
08/E2	0.770	0.867	0.816	01/A3	0.752	0.762	0.757	07/H2	0.629	0.733	0.677	09/B2	0.250	0.200	0.222
09/E4	0.803	0.828	0.815	06/D2	0.750	0.763	0.757	03/D2	0.667	0.688	0.677	02/A1	0.259	0.051	0.085

Table 3. Performance of SVM for professional *level I (Full Professor)* and *II (Associate Professor)*. Each row corresponds to a SA. The results are ordered in descending order with respect to the F-measure values. Non-bibliometric SAs have a gray background.

AREA	Full Professor			Associate Professor		
	P	**R**	**FM**	**P**	**R**	**FM**
01	0.752	0.778	0.765	0.696	0.762	0.727
02	0.593	0.714	0.648	0.624	0.657	0.640
03	0.652	0.675	0.663	0.708	0.697	0.702
04	0.738	0.794	0.765	0.708	0.834	0.766
05	0.692	0.772	0.730	0.710	0.838	0.769
06	0.745	0.817	0.779	0.746	0.851	0.795
07	0.639	0.606	0.622	0.683	0.723	0.702
08	0.773	0.792	0.782	0.757	0.780	0.768
09	0.801	0.792	0.797	0.788	0.858	0.822
11/E	0.872	0.852	0.862	0.767	0.872	0.816
10	0.763	0.729	0.745	0.708	0.862	0.778
11	0.784	0.788	0.786	0.735	0.890	0.805
12	0.742	0.770	0.755	0.780	0.834	0.806
13	0.661	0.707	0.683	0.685	0.734	0.709
14	0.799	0.824	0.811	0.793	0.888	0.838
08 non-bibl.	0.799	0.801	0.800	0.804	0.883	0.842

Table 4. Performance of SVM for professional *level I (Full Professor)*. Only the top 15 features have been used for the classification. Each row corresponds to a SD. The results are ordered in descending order with respect to the F-measure values. Non-bibliometric SDs have a gray background.

SD	P	R	FM	SD	P	R	FM	SD	P	R	FM	S	P	R	FM
09/D1	0.954	0.973	0.963	08/E1	0.900	0.750	0.818	10/L1	0.731	0.792	0.760	10/D2	0.667	0.667	0.667
07/F1	0.962	0.926	0.943	06/M2	0.767	0.875	0.818	06/E2	0.717	0.805	0.759	13/D4	0.616	0.726	0.667
05/I1	0.870	0.992	0.927	06/B1	0.753	0.887	0.814	03/D1	0.746	0.770	0.758	03/A2	0.645	0.682	0.663
11/E2	0.977	0.875	0.923	14/C2	0.776	0.849	0.811	07/B2	0.690	0.833	0.755	11/A5	0.731	0.594	0.655
06/F2	0.906	0.935	0.921	06/D3	0.750	0.882	0.811	01/A4	0.763	0.744	0.753	12/E1	0.643	0.659	0.651
11/E4	0.864	0.969	0.913	13/A4	0.773	0.853	0.811	09/H1	0.737	0.768	0.752	07/B1	0.632	0.667	0.649
11/E3	0.860	0.961	0.907	06/H1	0.800	0.818	0.809	04/A2	0.688	0.830	0.752	09/B3	0.733	0.579	0.647
06/L1	0.862	0.943	0.901	01/A6	0.760	0.864	0.809	13/C1	0.769	0.732	0.750	10/G1	0.686	0.603	0.642
11/D1	0.875	0.909	0.892	09/E4	0.829	0.784	0.806	12/E3	0.732	0.769	0.750	01/A5	0.615	0.667	0.640
08/D1	0.843	0.944	0.890	06/E1	0.747	0.868	0.803	13/A1	0.751	0.747	0.749	06/D6	0.638	0.638	0.638
08/A2	0.840	0.933	0.884	09/B1	0.800	0.800	0.800	05/D1	0.637	0.905	0.748	10/M1	0.710	0.579	0.638
14/C1	0.830	0.941	0.882	08/A3	0.800	0.800	0.800	11/A1	0.759	0.733	0.746	09/D2	0.609	0.667	0.636
02/C1	0.832	0.933	0.880	13/B3	0.791	0.810	0.800	09/D3	0.696	0.800	0.744	07/C1	0.722	0.565	0.634
07/H4	0.875	0.875	0.875	11/A4	0.790	0.803	0.797	02/B2	0.800	0.696	0.744	05/H1	0.612	0.652	0.632
10/F3	0.850	0.895	0.872	09/F2	0.803	0.790	0.797	12/B2	0.929	0.619	0.743	07/G1	0.609	0.636	0.622
12/D1	0.841	0.902	0.871	06/F1	0.746	0.855	0.797	10/M2	0.697	0.793	0.742	09/E2	0.571	0.667	0.615
11/D2	0.824	0.909	0.864	01/A1	0.727	0.870	0.792	11/C2	0.689	0.792	0.737	07/H5	0.583	0.636	0.609
06/D1	0.810	0.924	0.863	12/G1	0.679	0.950	0.792	06/A2	0.654	0.827	0.730	10/D4	0.615	0.600	0.608
13/D1	0.802	0.931	0.862	08/A4	0.750	0.840	0.792	11/A2	0.697	0.767	0.730	12/H2	0.556	0.667	0.606
06/N1	0.787	0.950	0.861	08/B2	0.739	0.850	0.791	11/B1	0.767	0.697	0.730	05/C1	0.667	0.545	0.600
05/B2	0.813	0.912	0.860	08/F1	0.783	0.797	0.790	13/A5	0.684	0.765	0.722	07/E1	0.600	0.600	0.600
11/C3	0.887	0.825	0.855	09/F1	0.762	0.821	0.790	09/E1	0.688	0.759	0.721	07/H2	0.667	0.545	0.600
02/B3	0.797	0.914	0.851	08/B3	0.778	0.800	0.789	12/D2	0.737	0.700	0.718	06/D5	0.583	0.609	0.596
09/C1	0.850	0.850	0.850	10/B1	0.784	0.790	0.787	01/A2	0.645	0.800	0.714	10/E1	0.583	0.609	0.596
05/B1	0.807	0.893	0.848	10/D1	0.846	0.733	0.786	03/C2	0.667	0.769	0.714	10/N3	0.579	0.611	0.595
12/E2	0.779	0.931	0.848	11/C5	0.756	0.808	0.781	09/A2	0.714	0.714	0.714	01/A3	0.618	0.566	0.591
08/A1	0.818	0.878	0.847	14/A1	0.758	0.806	0.781	13/A2	0.733	0.685	0.708	06/D4	0.657	0.535	0.590
09/E3	0.877	0.810	0.842	10/D3	0.793	0.767	0.780	12/H1	0.632	0.800	0.706	03/B2	0.750	0.462	0.571
01/B1	0.771	0.925	0.841	06/A4	0.732	0.833	0.779	13/D3	0.750	0.667	0.706	06/D2	0.579	0.564	0.571
12/F1	0.724	1.000	0.840	12/A1	0.724	0.835	0.776	05/A1	0.716	0.696	0.706	10/A1	0.574	0.557	0.565
06/A3	0.783	0.903	0.839	05/E1	0.689	0.886	0.775	10/C1	0.740	0.675	0.706	13/B4	0.679	0.475	0.559
11/E1	0.870	0.811	0.839	04/A3	0.773	0.773	0.773	05/E2	0.667	0.747	0.705	13/A3	0.600	0.500	0.545
05/G1	0.807	0.871	0.838	05/A2	0.654	0.944	0.773	04/A1	0.717	0.691	0.704	06/A1	0.536	0.536	0.536
10/N1	0.761	0.931	0.837	12/C1	0.746	0.800	0.772	03/C1	0.652	0.741	0.694	12/B1	0.571	0.500	0.533
06/E3	0.903	0.778	0.836	08/E2	0.709	0.848	0.772	09/A1	0.692	0.692	0.692	08/B1	0.600	0.429	0.500
04/A4	0.756	0.930	0.834	08/C1	0.843	0.711	0.771	13/D2	0.706	0.667	0.686	13/B5	0.500	0.357	0.417
09/B2	0.833	0.833	0.833	07/H1	0.833	0.714	0.769	14/B2	0.700	0.667	0.683	02/A2	0.656	0.304	0.416
14/D1	0.848	0.813	0.830	12/G2	0.750	0.789	0.769	06/C1	0.627	0.736	0.677	07/H3	0.400	0.333	0.364
05/H2	0.759	0.917	0.830	10/F1	0.717	0.826	0.768	07/A1	0.688	0.667	0.677	02/B1	0.514	0.257	0.343
14/A2	0.786	0.880	0.830	06/G1	0.744	0.795	0.768	06/I1	0.722	0.634	0.675	10/I1	0.375	0.286	0.324
09/G2	0.824	0.824	0.824	13/B1	0.726	0.815	0.768	10/H1	0.875	0.538	0.667	03/B1	0.429	0.250	0.316
11/C4	0.778	0.875	0.824	11/A3	0.800	0.737	0.767	03/A1	0.692	0.643	0.667	07/F2	0.375	0.273	0.316
06/F4	0.790	0.856	0.822	10/F2	0.804	0.725	0.763	03/D2	0.636	0.700	0.667	07/D1	0.600	0.200	0.300
06/M1	0.809	0.833	0.821	09/G1	0.727	0.800	0.762	12/H3	0.733	0.611	0.667	02/A1	0.326	0.097	0.150
13/B2	0.792	0.851	0.821	12/C2	0.800	0.727	0.762	14/B1	0.667	0.667	0.667	05/F1	0.250	0.030	0.054
09/A3	0.926	0.735	0.820	09/C2	0.784	0.741	0.762	11/C1	0.657	0.676	0.667	06/F3	0.000	0.000	0.000

SD	P	R	FM	SD	P	R	FM	SD	P	R	FM	S	P	R	FM
07/F1	0.928	0.951	0.939	06/B1	0.761	0.903	0.826	13/D4	0.747	0.808	0.776	10/I1	0.673	0.712	0.692
05/I1	0.851	1.000	0.919	10/G1	0.770	0.890	0.826	06/G1	0.794	0.759	0.776	11/B1	0.607	0.802	0.691
14/C1	0.852	0.994	0.918	05/B2	0.757	0.908	0.826	11/A1	0.730	0.821	0.773	01/A2	0.664	0.717	0.689
09/D1	0.878	0.959	0.917	08/B3	0.917	0.746	0.822	14/A1	0.673	0.907	0.773	07/B2	0.688	0.688	0.688
11/D2	0.959	0.863	0.909	07/G1	0.802	0.841	0.821	06/D3	0.755	0.790	0.772	13/D1	0.741	0.642	0.688
11/E4	0.833	0.992	0.906	10/D1	0.814	0.828	0.821	06/A4	0.724	0.824	0.771	10/M1	0.614	0.783	0.688
11/D1	0.813	1.000	0.897	14/B1	0.789	0.851	0.819	11/A2	0.739	0.806	0.771	12/G2	0.794	0.600	0.684
14/C2	0.814	0.996	0.895	11/A5	0.785	0.848	0.816	10/M2	0.712	0.841	0.771	13/A3	0.712	0.653	0.681
12/D2	0.810	1.000	0.895	09/E2	0.750	0.892	0.815	14/A2	0.752	0.784	0.768	06/E3	0.648	0.714	0.680
06/F2	0.842	0.955	0.895	04/A3	0.762	0.871	0.813	09/D3	0.767	0.767	0.767	10/E1	0.611	0.764	0.679
05/H2	0.807	1.000	0.893	11/C1	0.697	0.976	0.813	06/D5	0.676	0.885	0.767	13/B4	0.628	0.731	0.676
09/E4	0.891	0.891	0.891	05/A1	0.794	0.831	0.813	09/B1	0.684	0.867	0.765	01/A5	0.773	0.596	0.673
13/B3	0.862	0.920	0.890	13/A1	0.743	0.893	0.811	09/C2	0.765	0.765	0.765	04/A1	0.631	0.716	0.671
08/D1	0.806	0.989	0.888	12/G1	0.775	0.849	0.810	09/F2	0.868	0.680	0.763	06/D4	0.727	0.621	0.670
11/E2	0.888	0.882	0.885	08/A3	0.788	0.818	0.803	05/H1	0.674	0.875	0.762	06/F1	0.660	0.681	0.670
08/A2	0.838	0.925	0.879	07/B1	0.763	0.845	0.802	03/B1	0.756	0.765	0.761	01/A1	0.561	0.804	0.661
05/G1	0.868	0.889	0.878	06/D2	0.772	0.833	0.802	05/C1	0.725	0.798	0.760	11/E1	0.621	0.698	0.657
06/N1	0.781	1.000	0.877	09/B3	0.850	0.756	0.800	11/A3	0.716	0.810	0.760	01/A3	0.715	0.599	0.652
09/F1	0.877	0.864	0.870	12/E3	0.725	0.892	0.800	08/B2	0.878	0.667	0.758	03/D2	0.750	0.563	0.643
12/D1	0.876	0.856	0.866	08/E1	0.833	0.765	0.798	11/C4	0.688	0.841	0.757	09/A2	0.643	0.643	0.643
12/C1	0.899	0.833	0.865	05/E1	0.725	0.888	0.798	05/E2	0.675	0.861	0.757	10/H1	0.574	0.722	0.639
06/L1	0.776	0.976	0.865	13/A4	0.686	0.954	0.798	13/D2	0.722	0.792	0.755	13/C1	0.620	0.657	0.638
06/M2	0.784	0.956	0.862	10/F2	0.734	0.873	0.797	07/D1	0.718	0.792	0.753	12/H2	0.800	0.522	0.632
11/A4	0.797	0.939	0.862	11/C5	0.736	0.866	0.796	02/B2	0.730	0.773	0.751	09/A3	0.632	0.632	0.632
02/B3	0.789	0.950	0.862	09/H1	0.741	0.857	0.795	12/B2	0.712	0.792	0.750	09/A1	0.584	0.686	0.631
10/F1	0.759	0.994	0.861	03/C2	0.805	0.786	0.795	10/D4	0.662	0.847	0.743	10/N3	0.517	0.721	0.602
06/A3	0.762	0.986	0.860	13/B2	0.894	0.716	0.795	07/C1	0.724	0.764	0.743	07/F2	0.688	0.524	0.595
04/A4	0.759	0.989	0.859	08/A4	0.742	0.852	0.793	01/A6	0.657	0.852	0.742	07/H4	0.600	0.563	0.581
10/C1	0.814	0.907	0.858	03/D1	0.767	0.818	0.792	01/B1	0.748	0.733	0.740	07/H1	0.625	0.536	0.577
06/A2	0.767	0.973	0.857	06/C1	0.767	0.816	0.791	06/D6	0.733	0.747	0.740	07/H2	0.615	0.533	0.571
08/E2	0.746	1.000	0.855	05/A2	0.757	0.824	0.789	03/A2	0.663	0.832	0.738	07/A1	0.643	0.514	0.571
09/C1	0.819	0.894	0.855	10/D3	0.793	0.783	0.788	12/H3	0.764	0.714	0.738	13/A5	0.613	0.528	0.567
09/G2	0.823	0.886	0.853	12/B1	0.868	0.719	0.786	09/B2	0.778	0.700	0.737	02/B1	0.685	0.466	0.555
10/B1	0.742	1.000	0.852	05/D1	0.790	0.778	0.784	08/F1	0.672	0.806	0.733	13/A2	0.716	0.364	0.482
08/C1	0.887	0.812	0.848	01/A4	0.709	0.871	0.782	12/E2	0.717	0.750	0.733	03/B2	0.789	0.313	0.448
06/D1	0.811	0.888	0.848	11/E3	0.872	0.707	0.781	04/A2	0.701	0.761	0.730	12/H1	0.636	0.318	0.424
06/M1	0.822	0.861	0.841	11/C3	0.663	0.952	0.781	10/A1	0.673	0.785	0.725	14/B2	0.457	0.368	0.408
13/D3	0.817	0.866	0.841	10/L1	0.670	0.937	0.781	09/D2	0.646	0.824	0.724	10/D2	0.448	0.203	0.280
12/A1	0.729	0.991	0.840	02/C1	0.752	0.813	0.781	13/B5	0.739	0.708	0.723	08/B1	0.600	0.136	0.222
12/F1	0.723	1.000	0.839	08/A1	0.766	0.797	0.781	10/N1	0.648	0.814	0.722	10/F3	0.400	0.138	0.205
06/E1	0.788	0.893	0.837	06/H1	0.741	0.822	0.779	06/A1	0.697	0.742	0.719	07/H5	0.250	0.067	0.105
06/E2	0.763	0.926	0.837	09/E1	0.759	0.800	0.779	09/G1	0.793	0.657	0.719	05/F1	1.000	0.011	0.023
09/E3	0.796	0.872	0.832	03/C1	0.778	0.778	0.778	03/A1	0.639	0.802	0.711	07/H3	0.000	0.000	0.000
14/D1	0.886	0.780	0.830	06/I1	0.816	0.741	0.777	13/B1	0.788	0.641	0.707	02/A2	0.000	0.000	0.000
05/B1	0.761	0.914	0.830	12/E1	0.802	0.754	0.777	07/E1	0.615	0.812	0.700	02/A1	0.000	0.000	0.000
06/F4	0.806	0.853	0.829	12/C2	0.826	0.731	0.776					06/F3	0.000	0.000	0.000

References