Model on FakeNewsCorpus without metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.874373	0.902019	0.818084	0.843615	13962.0	0.884888	0.874373	0.867151	13962.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.882467	0.922142	0.823413	0.852045	13962.0	0.898419	0.882467	0.874812	13962.0
_ngram_2_SVC(kernel='linear')_	0.875591	0.916948	0.813555	0.842405	13962.0	0.892685	0.875591	0.866946	13962.0
_ngram_3_SVC(kernel='linear')_	0.882037	0.922295	0.822598	0.851358	13962.0	0.898296	0.882037	0.874274	13962.0
_ngram_2_DecisionTreeClassifier()_	0.834766	0.815642	0.806092	0.810469	13962.0	0.832868	0.834766	0.833497	13962.0
_ngram_3_DecisionTreeClassifier()_	0.876092	0.903146	0.820686	0.846047	13962.0	0.886276	0.876092	0.869126	13962.0
_ngramKNN_2k=1	0.800530	0.775152	0.770312	0.772602	13962.0	0.798972	0.800530	0.799645	13962.0
_ngramKNN_2k=3	0.805758	0.781718	0.773777	0.777418	13962.0	0.803514	0.805758	0.804370	13962.0
_ngramKNN_2k=5	0.847801	0.856640	0.792751	0.813031	13962.0	0.850906	0.847801	0.840392	13962.0
_ngramKNN_2k=7	0.854677	0.876139	0.794589	0.818448	13962.0	0.862994	0.854677	0.845970	13962.0
_ngramKNN_2k=10	0.858187	0.896031	0.791605	0.819099	13962.0	0.874276	0.858187	0.847635	13962.0
_ngramKNN_3k=1	0.866710	0.882400	0.814285	0.836333	13962.0	0.872205	0.866710	0.860261	13962.0
_ngramKNN_3k=3	0.874158	0.903336	0.817045	0.842987	13962.0	0.885392	0.874158	0.866728	13962.0
_ngramKNN_3k=5	0.876808	0.910998	0.818254	0.845489	13962.0	0.890320	0.876808	0.869096	13962.0
_ngramKNN_3k=7	0.878456	0.916354	0.818825	0.846971	13962.0	0.893705	0.878456	0.870526	13962.0
_ngramKNN_3k=10	0.877883	0.917581	0.817299	0.845845	13962.0	0.894046	0.877883	0.869694	13962.0
_TFIDF_LogisticRegression(solver='sag')_	0.898582	0.913193	0.857695	0.877902	13962.0	0.902943	0.898582	0.894954	13962.0
_TFIDF_SVC(kernel='linear')_	0.909612	0.920698	0.874610	0.892401	13962.0	0.912529	0.909612	0.907004	13962.0
_TFIDF_DecisionTreeClassifier()_	0.863916	0.847159	0.843898	0.845486	13962.0	0.863343	0.863916	0.863595	13962.0
_KNN_1	0.705057	0.827833	0.554710	0.509637	13962.0	0.782704	0.705057	0.614685	13962.0
_KNN_3	0.693454	0.841510	0.536048	0.474195	13962.0	0.788743	0.693454	0.589417	13962.0
_KNN_5	0.690302	0.841890	0.531223	0.464873	13962.0	0.788235	0.690302	0.582737	13962.0
_KNN_7	0.689156	0.841490	0.529488	0.461508	13962.0	0.787700	0.689156	0.580322	13962.0
_KNN_10	0.686936	0.840719	0.526127	0.454931	13962.0	0.786667	0.686936	0.575607	13962.0

Figure 1: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)

Model on FakeNewsCorpus with metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.884830	0.912307	0.832155	0.857550	13962.0	0.894907	0.884830	0.878704	13962.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.894284	0.928872	0.841301	0.868671	13962.0	0.907292	0.894284	0.888353	13962.0
_ngram_2_SVC(kernel='linear')_	0.894284	0.925916	0.842675	0.869183	13962.0	0.905917	0.894284	0.888629	13962.0
_ngram_3_SVC(kernel='linear')_	0.894857	0.927656	0.842883	0.869730	13962.0	0.907008	0.894857	0.889145	13962.0
_ngram_2_DecisionTreeClassifier()_	0.850451	0.832249	0.827527	0.829794	13962.0	0.849532	0.850451	0.849916	13962.0
_ngram_3_DecisionTreeClassifier()_	0.887480	0.906629	0.840176	0.862746	13962.0	0.893879	0.887480	0.882518	13962.0
_ngramKNN_2k=1	0.805472	0.780017	0.781419	0.780707	13962.0	0.805976	0.805472	0.805715	13962.0
_ngramKNN_2k=3	0.841642	0.833421	0.798920	0.812012	13962.0	0.839557	0.841642	0.837339	13962.0
_ngramKNN_2k=5	0.853531	0.856413	0.805105	0.822894	13962.0	0.854427	0.853531	0.847891	13962.0
_ngramKNN_2k=7	0.858473	0.871117	0.804949	0.826206	13962.0	0.862904	0.858473	0.851618	13962.0
_ngramKNN_2k=10	0.865492	0.899091	0.803323	0.830218	13962.0	0.879167	0.865492	0.856480	13962.0
_ngramKNN_3k=1	0.873012	0.879554	0.828990	0.847195	13962.0	0.874955	0.873012	0.868509	13962.0
_ngramKNN_3k=3	0.884687	0.908703	0.833751	0.858073	13962.0	0.893230	0.884687	0.878929	13962.0
_ngramKNN_3k=5	0.888555	0.917867	0.836199	0.862092	13962.0	0.899335	0.888555	0.882592	13962.0
_ngramKNN_3k=7	0.889271	0.921634	0.835690	0.862464	13962.0	0.901432	0.889271	0.883069	13962.0
_ngramKNN_3k=10	0.890274	0.927191	0.834955	0.862974	13962.0	0.904551	0.890274	0.883729	13962.0
_TFIDF_LogisticRegression(solver='sag')_	0.930239	0.940848	0.901932	0.917764	13962.0	0.932659	0.930239	0.928633	13962.0
_TFIDF_SVC(kernel='linear')_	0.935826	0.940826	0.913465	0.925267	13962.0	0.936712	0.935826	0.934800	13962.0
_TFIDF_DecisionTreeClassifier()_	0.911259	0.901007	0.897650	0.899292	13962.0	0.910945	0.911259	0.911073	13962.0
_KNN_1	0.751898	0.848188	0.626820	0.625280	13962.0	0.808496	0.751898	0.699198	13962.0
_KNN_3	0.742945	0.856689	0.611456	0.602087	13962.0	0.811310	0.742945	0.682427	13962.0
_KNN_5	0.740152	0.856837	0.607063	0.595355	13962.0	0.810635	0.740152	0.677497	13962.0
_KNN_7	0.738433	0.859057	0.604131	0.590707	13962.0	0.811581	0.738433	0.674151	13962.0
_KNN_10	0.736929	0.858980	0.601800	0.587073	13962.0	0.811125	0.736929	0.671488	13962.0

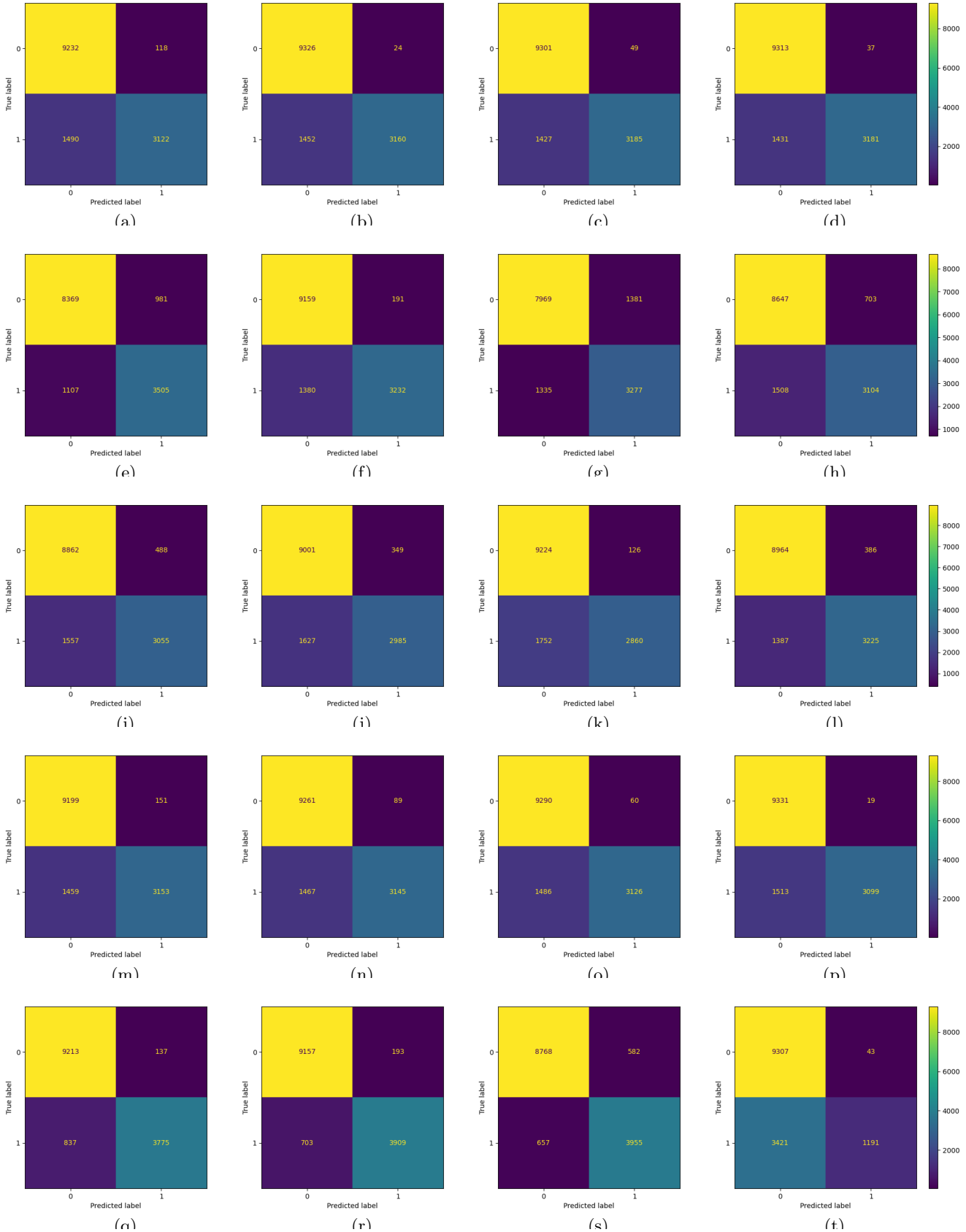
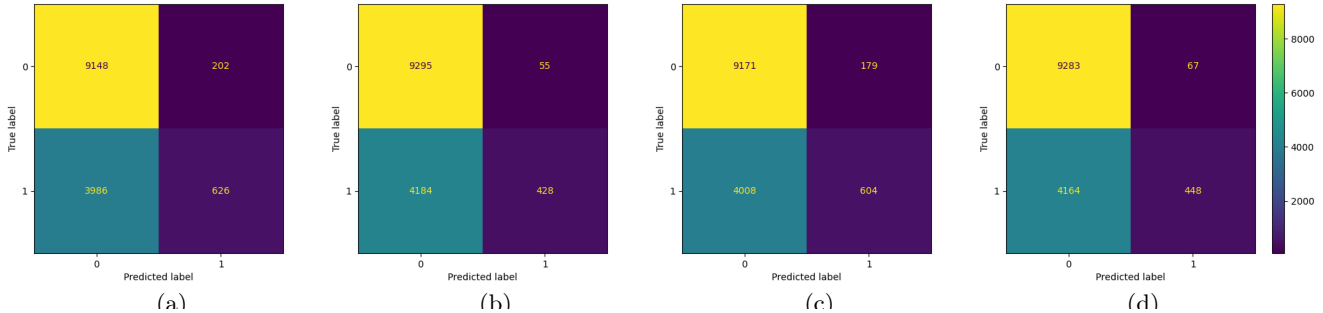


Figure 2: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)

Model on FakeNewsCorpus only with metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.700043	0.726276	0.557064	0.521941	13962.0	0.716176	0.700043	0.620961	13962.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.696390	0.787860	0.543460	0.491161	13962.0	0.754512	0.696390	0.600824	13962.0
_ngram_2_SVC(kernel='linear')_	0.700115	0.733636	0.555909	0.519031	13962.0	0.720823	0.700115	0.619180	13962.0
_ngram_3_SVC(kernel='linear')_	0.696963	0.780121	0.544986	0.494583	13962.0	0.749654	0.696963	0.603115	13962.0
_ngram_2_DecisionTreeClassifier()_	0.694600	0.682052	0.556736	0.527063	13962.0	0.687055	0.694600	0.622585	13962.0
_ngram_3_DecisionTreeClassifier()_	0.695459	0.753605	0.544742	0.496100	13962.0	0.732126	0.695459	0.603657	13962.0
_ngramKNN_2k=1	0.666022	0.590653	0.548584	0.534026	13962.0	0.625926	0.666022	0.618187	13962.0
_ngramKNN_2k=3	0.681206	0.624777	0.555196	0.535758	13962.0	0.649324	0.681206	0.623939	13962.0
_ngramKNN_2k=5	0.566967	0.605512	0.614386	0.564911	13962.0	0.670318	0.566967	0.575062	13962.0
_ngramKNN_2k=7	0.573199	0.604754	0.615028	0.570060	13962.0	0.668322	0.573199	0.582526	13962.0
_ngramKNN_2k=10	0.580862	0.603589	0.615256	0.575968	13962.0	0.665544	0.580862	0.591427	13962.0
_ngramKNN_3k=1	0.692881	0.712095	0.545289	0.501137	13962.0	0.704855	0.692881	0.606091	13962.0
_ngramKNN_3k=3	0.693597	0.724868	0.544725	0.498674	13962.0	0.713178	0.693597	0.604756	13962.0
_ngramKNN_3k=5	0.694528	0.742832	0.544212	0.495986	13962.0	0.724935	0.694528	0.603334	13962.0
_ngramKNN_3k=7	0.695602	0.755072	0.544849	0.496187	13962.0	0.733110	0.695602	0.603750	13962.0
_ngramKNN_3k=10	0.695889	0.774268	0.543635	0.492408	13962.0	0.745574	0.695889	0.601468	13962.0
_TFIDF_LogisticRegression(solver='sag')_	0.802965	0.815412	0.726698	0.746686	13962.0	0.808411	0.802965	0.787204	13962.0
_TFIDF_SVC(kernel='linear')_	0.802822	0.812601	0.728074	0.747723	13962.0	0.807027	0.802822	0.787732	13962.0
_TFIDF_DecisionTreeClassifier()_	0.752757	0.720096	0.709153	0.713751	13962.0	0.747879	0.752757	0.749609	13962.0
_KNN_1	0.525068	0.620562	0.610956	0.524071	13962.0	0.695769	0.525068	0.516679	13962.0
_KNN_3	0.742301	0.730131	0.647892	0.657283	13962.0	0.736419	0.742301	0.715208	13962.0
_KNN_5	0.726185	0.702752	0.628608	0.634495	13962.0	0.714758	0.726185	0.696618	13962.0
_KNN_7	0.730053	0.724738	0.621497	0.624162	13962.0	0.727236	0.730053	0.691860	13962.0
_KNN_10	0.740223	0.801197	0.615686	0.611297	13962.0	0.775730	0.740223	0.687264	13962.0

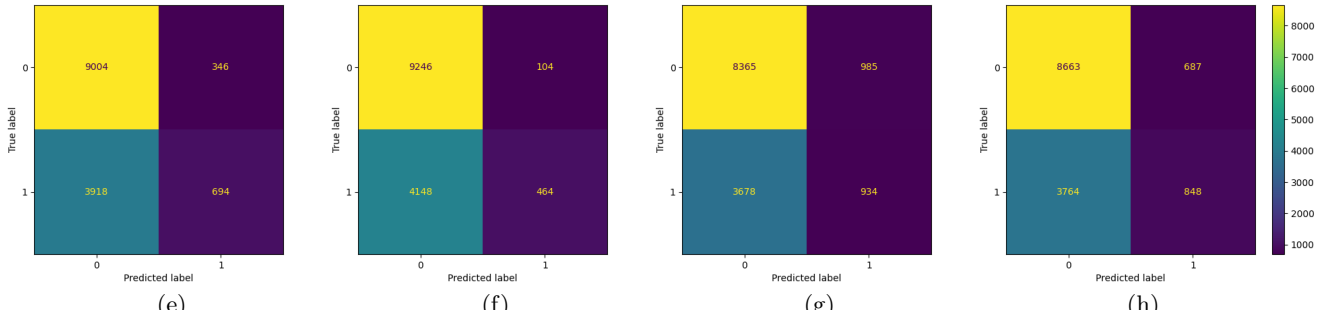


(a)

(b)

(c)

(d)

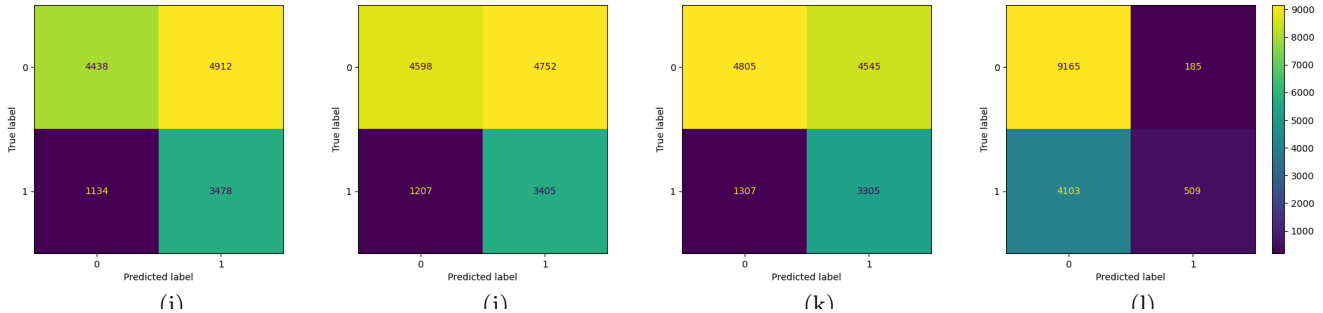


(e)

(f)

(g)

(h)

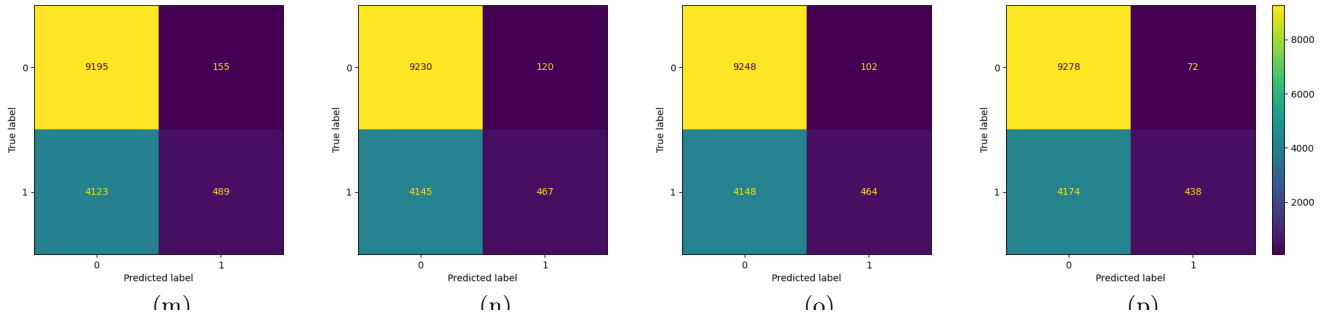


(i)

(j)

(k)

(l)

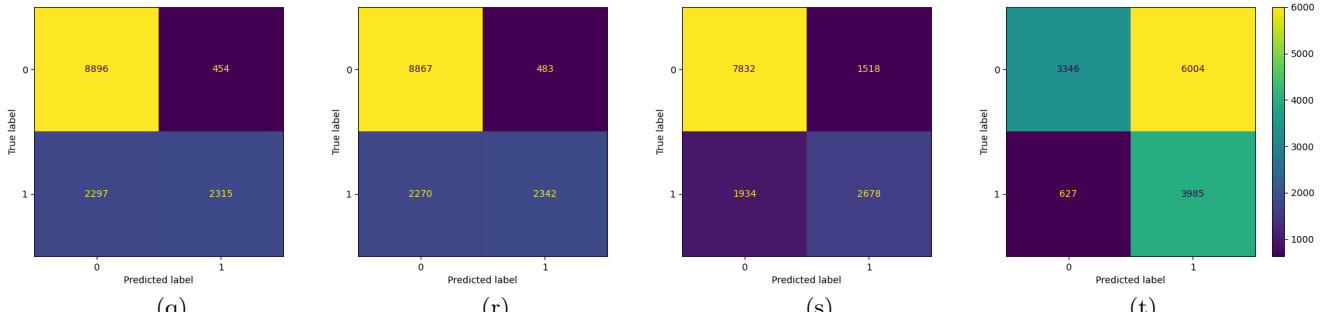


(m)

(n)

(o)

(p)

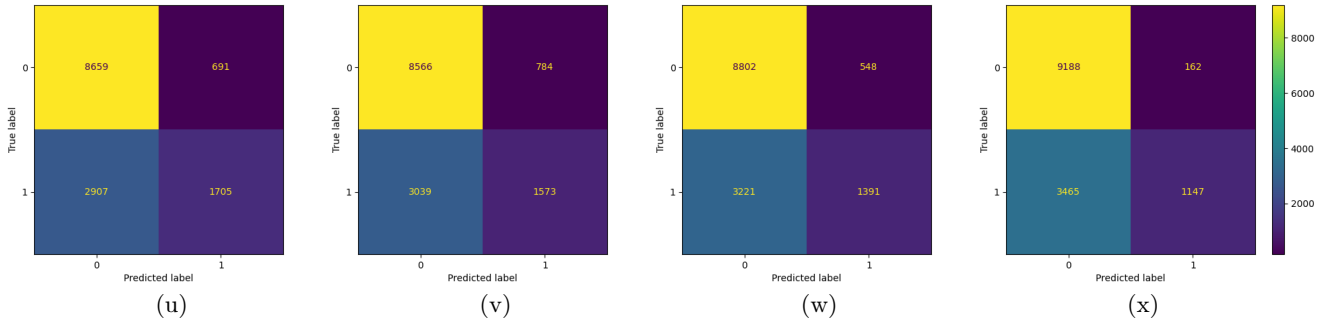


(q)

(r)

(s)

(t)



(u)

(v)

(w)

(x)

Figure 3: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)

Model on LIAR dataset without metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.721970	0.461087	0.499924	0.419544	12790.0	0.577117	0.721970	0.605743	12790.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_ngram_2_SVC(kernel='linear')_	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_ngram_3_SVC(kernel='linear')_	0.722127	0.527776	0.500032	0.419597	12790.0	0.614188	0.722127	0.605819	12790.0
_ngram_2_DecisionTreeClassifier()_	0.701720	0.478201	0.495950	0.440303	12790.0	0.585887	0.701720	0.610294	12790.0
_ngram_3_DecisionTreeClassifier()_	0.722048	0.486098	0.499978	0.419570	12790.0	0.591022	0.722048	0.605781	12790.0
_ngramKNN_2k=1	0.676153	0.507580	0.503708	0.482340	12790.0	0.603705	0.676153	0.623106	12790.0
_ngramKNN_2k=3	0.491634	0.507236	0.508973	0.473177	12790.0	0.606211	0.491634	0.517000	12790.0
_ngramKNN_2k=5	0.708991	0.495212	0.499338	0.439102	12790.0	0.595969	0.708991	0.612011	12790.0
_ngramKNN_2k=7	0.716341	0.504014	0.500270	0.430399	12790.0	0.601029	0.716341	0.609752	12790.0
_ngramKNN_2k=10	0.721501	0.521144	0.500206	0.421289	12790.0	0.610534	0.721501	0.606526	12790.0
_ngramKNN_3k=1	0.721188	0.549989	0.501028	0.424405	12790.0	0.626707	0.721188	0.608085	12790.0
_ngramKNN_3k=3	0.721814	0.537623	0.500249	0.420854	12790.0	0.619697	0.721814	0.606391	12790.0
_ngramKNN_3k=5	0.721267	0.444357	0.499610	0.419851	12790.0	0.567766	0.721267	0.605689	12790.0
_ngramKNN_3k=7	0.722127	0.361092	0.499946	0.419323	12790.0	0.521564	0.722127	0.605674	12790.0
_ngramKNN_3k=10	0.722127	0.361092	0.499946	0.419323	12790.0	0.521564	0.722127	0.605674	12790.0
_TFIDF_LogisticRegression(solver='sag')_	0.718061	0.503412	0.500162	0.427207	12790.0	0.600675	0.718061	0.608600	12790.0
_TFIDF_SVC(kernel='linear')_	0.718139	0.533220	0.502121	0.432874	12790.0	0.617590	0.718139	0.611625	12790.0
_TFIDF_DecisionTreeClassifier()_	0.645113	0.491020	0.493909	0.483198	12790.0	0.592464	0.645113	0.611753	12790.0
_KNN_1	0.721423	0.454796	0.499718	0.419904	12790.0	0.573585	0.721423	0.605766	12790.0
_KNN_3	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_KNN_5	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_KNN_7	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_KNN_10	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0

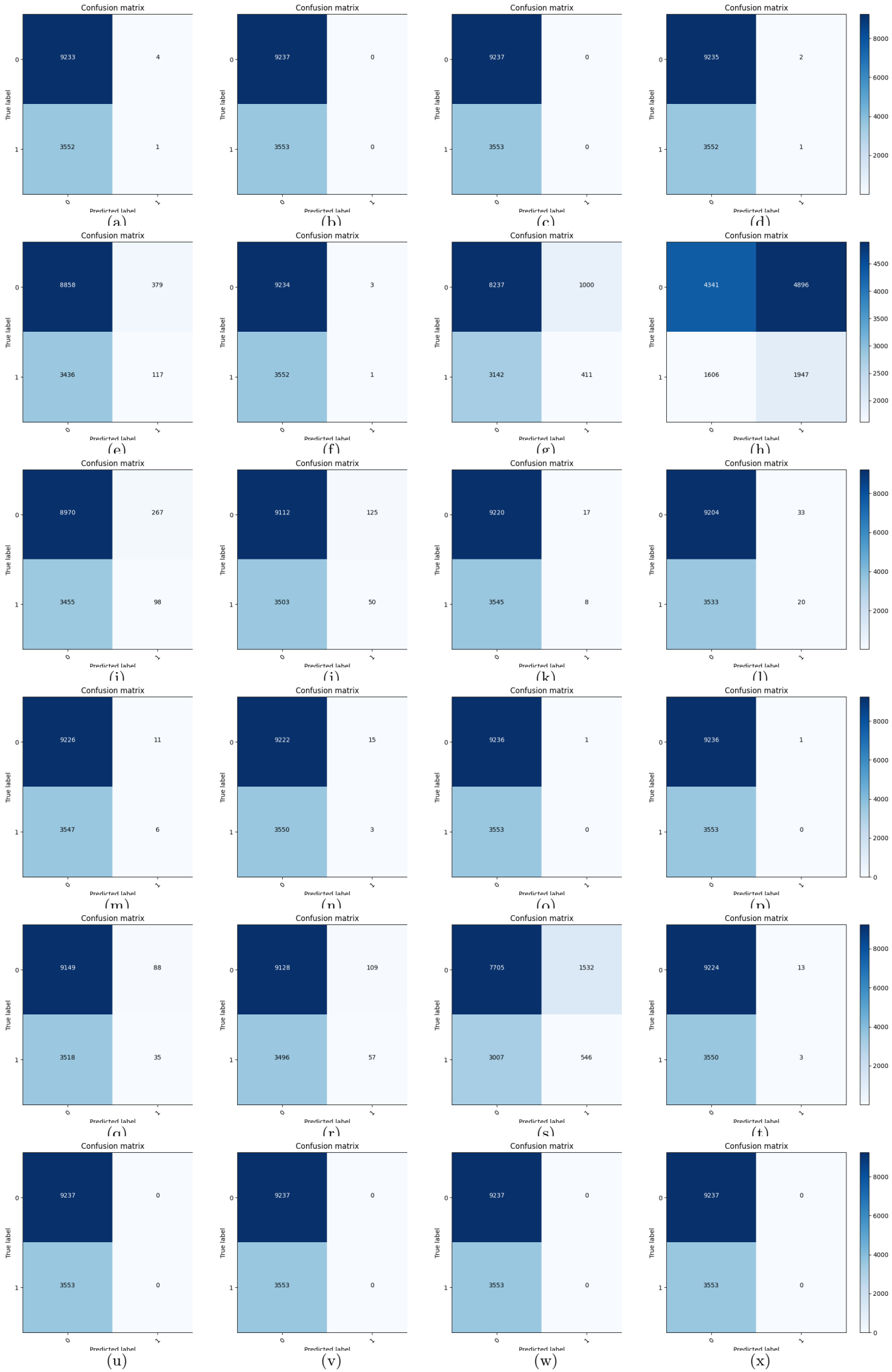


Figure 4: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)

Model on LIAR dataset with metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.720641	0.360885	0.498917	0.418821	12790.0	0.521266	0.720641	0.604950	12790.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_ngram_2_SVC(kernel='linear')_	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_ngram_3_SVC(kernel='linear')_	0.722127	0.527776	0.500032	0.419597	12790.0	0.614188	0.722127	0.605819	12790.0
_ngram_2_DecisionTreeClassifier()_	0.699062	0.487595	0.497227	0.446998	12790.0	0.591339	0.699062	0.612919	12790.0
_ngram_3_DecisionTreeClassifier()_	0.721970	0.361070	0.499838	0.419270	12790.0	0.521533	0.721970	0.605597	12790.0
_ngramKNN_2k=1	0.686083	0.494476	0.498026	0.463055	12790.0	0.595299	0.686083	0.616845	12790.0
_ngramKNN_2k=3	0.715481	0.506844	0.500541	0.432579	12790.0	0.602650	0.715481	0.610634	12790.0
_ngramKNN_2k=5	0.712119	0.501822	0.500205	0.436856	12790.0	0.599800	0.712119	0.611827	12790.0
_ngramKNN_2k=7	0.716028	0.504409	0.500313	0.431036	12790.0	0.601257	0.716028	0.609990	12790.0
_ngramKNN_2k=10	0.722127	0.601300	0.500985	0.422588	12790.0	0.655208	0.722127	0.607410	12790.0
_ngramKNN_3k=1	0.719859	0.506975	0.500195	0.424194	12790.0	0.602660	0.719859	0.607561	12790.0
_ngramKNN_3k=3	0.721970	0.578635	0.500704	0.421993	12790.0	0.642565	0.721970	0.607045	12790.0
_ngramKNN_3k=5	0.721267	0.444357	0.499610	0.419851	12790.0	0.567766	0.721267	0.605689	12790.0
_ngramKNN_3k=7	0.721892	0.486094	0.499957	0.419790	12790.0	0.591016	0.721892	0.605850	12790.0
_ngramKNN_3k=10	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_TFIDF_LogisticRegression(solver='sag')_	0.719390	0.460919	0.499090	0.421631	12790.0	0.576874	0.719390	0.606055	12790.0
_TFIDF_SVC(kernel='linear')_	0.714386	0.496362	0.499696	0.431896	12790.0	0.596673	0.714386	0.609928	12790.0
_TFIDF_DecisionTreeClassifier()_	0.697420	0.510534	0.503018	0.462652	12790.0	0.605176	0.697420	0.620497	12790.0
_KNN_1	0.705004	0.476193	0.496318	0.436702	12790.0	0.584845	0.705004	0.609471	12790.0
_KNN_3	0.718374	0.479231	0.499253	0.423924	12790.0	0.587077	0.718374	0.606957	12790.0
_KNN_5	0.720485	0.473520	0.499589	0.421207	12790.0	0.583964	0.720485	0.606169	12790.0
_KNN_7	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_KNN_10	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0

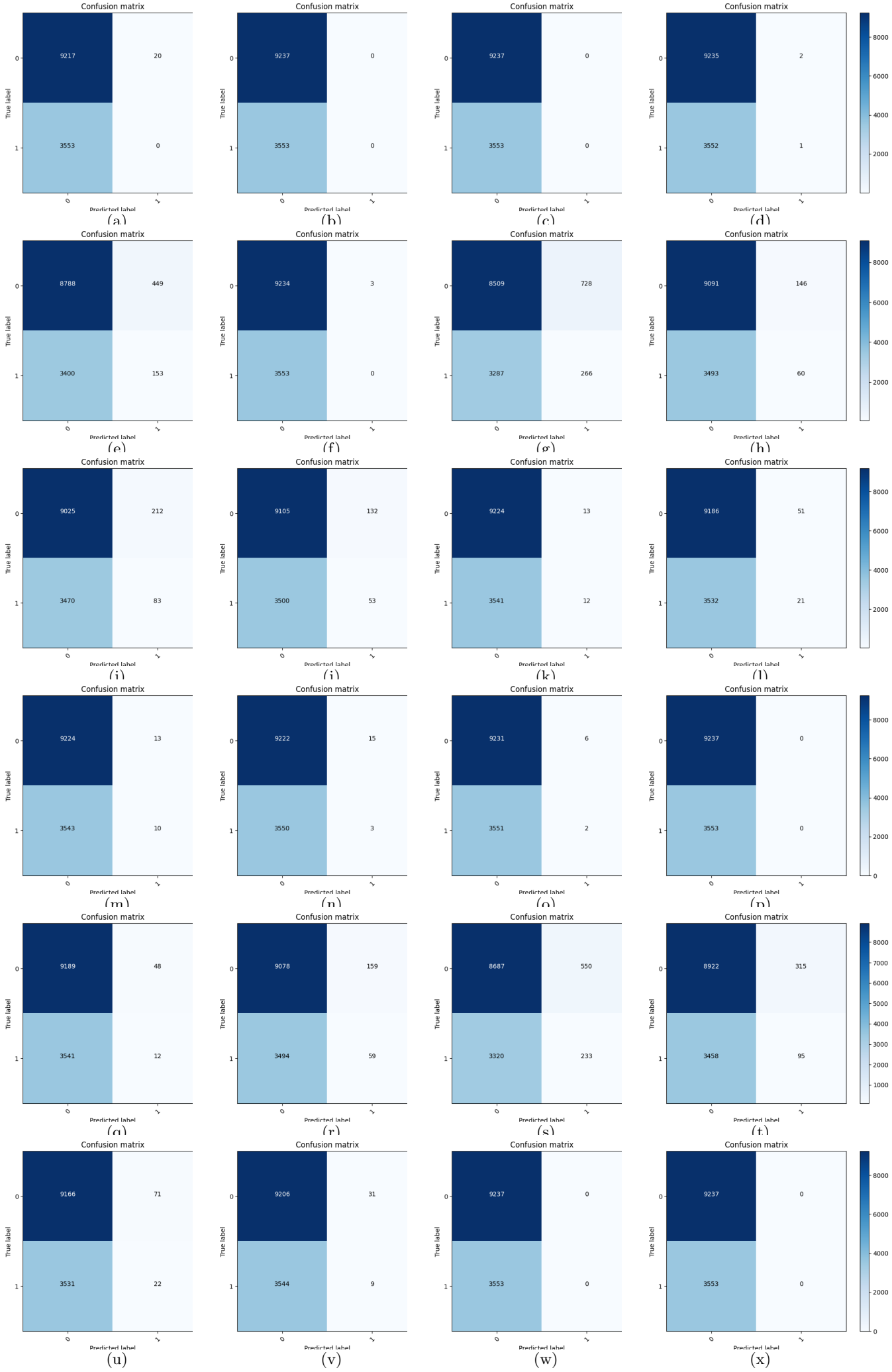


Figure 5: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)

Model on LIAR dataset only with metadata

	accuracy	precision macro	recall macro	f1-score macro	support macro	precision weighted	recall weighted	f1-score weighted	support weighted
_ngram_2_LogisticRegression(solver='sag')_	0.721814	0.537623	0.500249	0.420854	12790.0	0.619697	0.721814	0.606391	12790.0
_ngram_3_LogisticRegression(max_iter=10000, n_j...	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_ngram_2_SVC(kernel='linear')_	0.721423	0.497462	0.499978	0.420719	12790.0	0.597336	0.721423	0.606200	12790.0
_ngram_3_SVC(kernel='linear')_	0.722127	0.361092	0.499946	0.419323	12790.0	0.521564	0.722127	0.605674	12790.0
_ngram_2_DecisionTreeClassifier()_	0.720876	0.464470	0.499599	0.420531	12790.0	0.578938	0.720876	0.605931	12790.0
_ngram_3_DecisionTreeClassifier()_	0.722048	0.486098	0.499978	0.419570	12790.0	0.591022	0.722048	0.605781	12790.0
_ngramKNN_2k=1	0.716028	0.466584	0.498235	0.424899	12790.0	0.579866	0.716028	0.606743	12790.0
_ngramKNN_2k=3	0.716966	0.454177	0.498105	0.422891	12790.0	0.572950	0.716966	0.605972	12790.0
_ngramKNN_2k=5	0.351290	0.485866	0.489399	0.345596	12790.0	0.580653	0.351290	0.318470	12790.0
_ngramKNN_2k=7	0.352072	0.486313	0.489681	0.346538	12790.0	0.581240	0.352072	0.319814	12790.0
_ngramKNN_2k=10	0.352463	0.486587	0.489865	0.346998	12790.0	0.581598	0.352463	0.320452	12790.0
_ngramKNN_3k=1	0.721814	0.537623	0.500249	0.420854	12790.0	0.619697	0.721814	0.606391	12790.0
_ngramKNN_3k=3	0.722127	0.361092	0.499946	0.419323	12790.0	0.521564	0.722127	0.605674	12790.0
_ngramKNN_3k=5	0.722127	0.527776	0.500032	0.419597	12790.0	0.614188	0.722127	0.605819	12790.0
_ngramKNN_3k=7	0.722127	0.527776	0.500032	0.419597	12790.0	0.614188	0.722127	0.605819	12790.0
_ngramKNN_3k=10	0.722205	0.361102	0.500000	0.419349	12790.0	0.521580	0.722205	0.605712	12790.0
_TFIDF_LogisticRegression(solver='sag')_	0.700078	0.479957	0.495939	0.442463	12790.0	0.586858	0.700078	0.610888	12790.0
_TFIDF_SVC(kernel='linear')_	0.697811	0.485807	0.496707	0.447269	12790.0	0.590247	0.697811	0.612648	12790.0
_TFIDF_DecisionTreeClassifier()_	0.611415	0.489712	0.490843	0.489003	12790.0	0.590906	0.611415	0.600152	12790.0
_KNN_1	0.335184	0.477060	0.484916	0.325235	12790.0	0.568804	0.335184	0.288824	12790.0
_KNN_3	0.699844	0.522934	0.506687	0.468418	12790.0	0.612764	0.699844	0.624292	12790.0
_KNN_5	0.674433	0.496296	0.498274	0.473440	12790.0	0.596349	0.674433	0.618017	12790.0
_KNN_7	0.691087	0.505423	0.501837	0.466446	12790.0	0.602117	0.691087	0.620303	12790.0
_KNN_10	0.714543	0.514942	0.501450	0.436646	12790.0	0.607316	0.714543	0.612485	12790.0

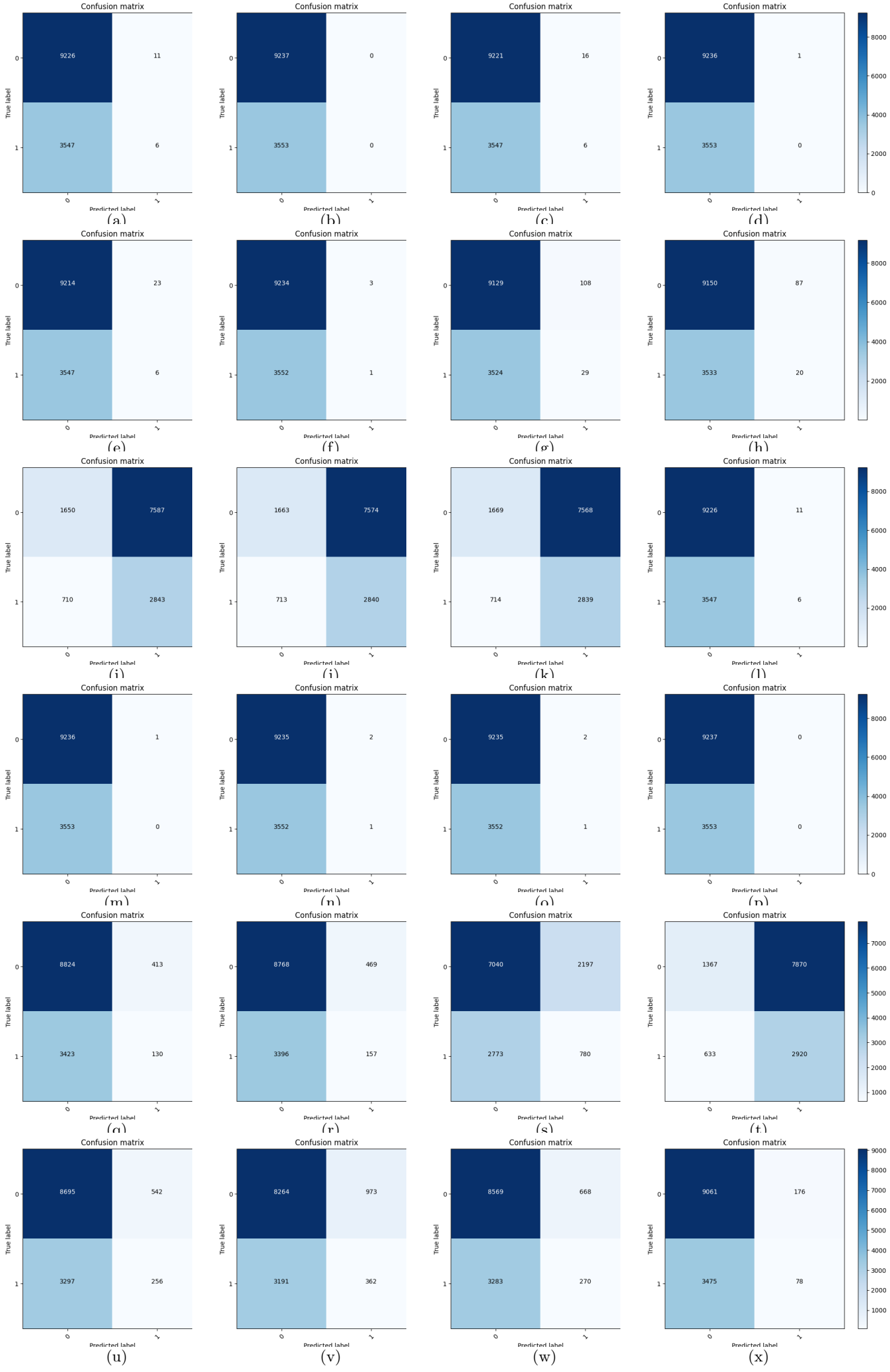


Figure 6: The models used in the above confusion matrices are respectively (a) bigram vectoriser with logistic regression; (b)