

中世スペイン語公証文書の年代推定法

順位相関係数の適用

Hiroto Ueda, Universidad de Tokio, テーマ講義 2013-6-18

0. はじめに

1. 歴史資料の年代推定

Corpus de Documentos Españoles Anteriores a 1700 del Grupo de Investigación de Textos para la Historia del Español de la Universidad de Alcalá de Henares, dirigido por Pedro Sánchez-Prieto Borja

Documentación de cancillería castellana del siglo XIII del Grupo de Estudio de Documentos Históricos y Textos Antiguos de la Universidad de Salamanca, dirigido por María Nieves Sánchez González de Herrero.

2. 文書特徴としての略記法

2.1. 頻度

Fig. 2.1. Formas abreviadas frecuentes

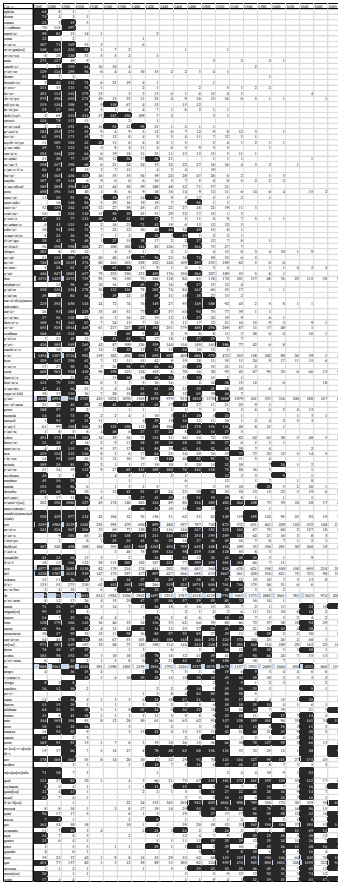
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do<n>	2615	joh<a>n	1625	gr<aci>a	1070	t<ie>rra	855	p<ri>or	723
p<ar>a	2532	n<uest>ra	1606	p<er>ez	1051	q<ua>ntos	846	sobr<e>	714

2.2. 年代と略記法の推移

Fig. 2.2a. Frecuencia absoluta de las formas

Obs.row.	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680	
<con>f<irma>	2449	561	981	416																			
an<n>o	241	324	567	204	33	69	77	139	212	116	144	167	181	225	164	87	75	60	2	127	10	13	
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bie<n>	83	163	436	125	16	35	35	54	39	24	28	47	26	6	2		1	3					1
c<art>a						1	46	75	195	124	98	219	148	128	55	8	3						
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d<e>	135	55	273	230	62	413	345	329	266	329	323	1071	840	761	744	175	46	31	6	6			3
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d<e>la	2	7	99	70	21	73	105	50	35	89	34	154	151	111	108	24	6						
d<e>los	4		39	20	2	14	24	11	12	8	7	27	52	29	30	7							
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d<ic>hos							10	6	21	33	42	130	142	161	136	109	52	27	5	49	3		117
dich<o>	2	67	321	406	57	240	155	108	5	2			2										
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egl<es>ia	119	136	308	91	9	118	67	4	33		15	12											
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jah<e>n	160	173	257	46	6	10	2	2	10	1		3	12	1									
joh<a>n	252	211	329	153	27	61	49	65	20	2	8	2	8	1									
ma<n>do	98	138	180	45	11	19	11	6	60	6	27	55	11	17	5				1				
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n<uest>ra	43	120	306	44	15	84	61	82	48	13	16	41	157	152	116	121	41	8	5	3	3		15
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nj<n>	209	203	717	446	106	253	169	192	327	162	130	224	194	125	27								
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p<er>ez	129	126	295	96	6	4	4	10	15	2	2	3	4	1									
p<er>o	17	27	58	53	7	26	50	59	66	66	28	39	35	21	11	2							
p<ere>z	47	34	77	113	40	44	32	61	37	7	5	11	4	9	7	5	1	1					1
p<ri>or	7	21	49	12	2	33	62	75	17	18	11	37	29	7	7								
q<ua>l	61	99	208	246	51	123	150	112	205	106	145	270	154	141	48	8	21	1					2
q<ua>nto	167	190	364	223	12	44	45	55	87	45	45	64	52	17									
q<ua>ntos	68	94	165	102	8	22	19	25	49	19	10	21	13	12									
q<ui>er	110	136	326	278	36	113	126	78	203	74	84	163	66	53	17			1	1				
sen<n>or	54	45	178	127	16	67	53	103	163	108	143	266	252	323	173	104	25	26	2	68	1		5
sobr<e>	10	92	192	73	7	22	12	36	40	44	34	45	15	8	1								
t<ic>rra	14	55	169	41	3	12	10	39	37	140	46	82	91	76	31	5	4						
t<ien>po		1		6	1	25	33	43	66	29	16	37	36	45	16	7	6	7	1	2			1
v<uest>ra		2	2	4	5	1	4	41	39	22	32	34	51	123	108	52	7	3			9		3
v<uestra>														37	37	59	88	182	69	101			83

Fig. 2.2b. Distribución concentrada



2.3. さまざまな実験

Fig.2.3.1. Matriz de correlación, frecuencia absoluta, distancia total: 14

Pearson	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
1260	1.000	.975	.972	.967	.941	.901	.913	.908	.927	.918	.918	.895	.910	.929	.913	.901	.889	.888	.900	.887	.921	.874
1280	.975	1.000	.998	.990	.981	.949	.954	.956	.956	.954	.939	.928	.935	.946	.922	.897	.880	.877	.890	.872	.908	.862
1300	.972	.998	1.000	.993	.984	.954	.958	.959	.959	.957	.942	.934	.939	.947	.924	.895	.877	.876	.887	.869	.906	.857
1320	.967	.990	.993	1.000	.991	.971	.969	.968	.972	.967	.959	.950	.955	.959	.939	.912	.901	.895	.908	.890	.926	.874
1340	.941	.981	.984	.991	1.000	.984	.981	.981	.976	.972	.961	.954	.953	.950	.928	.893	.883	.877	.884	.869	.901	.850
1360	.901	.949	.954	.971	.984	1.000	.989	.985	.973	.972	.962	.966	.959	.945	.928	.883	.876	.863	.874	.854	.888	.830
1380	.913	.954	.958	.969	.981	.985	1.000	.994	.982	.983	.971	.965	.956	.945	.923	.877	.874	.865	.870	.857	.882	.832
1400	.908	.956	.959	.968	.981	.985	.994	1.000	.989	.984	.978	.966	.960	.951	.927	.887	.887	.878	.881	.870	.892	.844
1420	.927	.956	.959	.972	.976	.973	.982	.989	1.000	.985	.993	.973	.975	.971	.950	.924	.927	.920	.921	.916	.932	.888
1440	.918	.954	.957	.967	.972	.972	.983	.984	.985	1.000	.983	.988	.984	.977	.961	.921	.910	.899	.902	.896	.913	.890
1460	.918	.939	.942	.959	.961	.962	.971	.978	.993	.983	1.000	.978	.983	.982	.968	.950	.954	.948	.945	.944	.950	.920
1480	.895	.928	.934	.950	.954	.966	.965	.966	.973	.988	.978	1.000	.995	.983	.978	.932	.917	.903	.907	.900	.920	.900
1500	.910	.935	.939	.955	.953	.959	.956	.960	.975	.984	.983	.995	1.000	.994	.990	.958	.944	.930	.936	.929	.947	.927
1520	.929	.946	.947	.959	.950	.945	.945	.951	.971	.977	.982	.983	.994	1.000	.995	.975	.961	.952	.957	.953	.966	.953
1540	.913	.922	.924	.939	.928	.928	.923	.927	.950	.961	.968	.978	.990	.995	1.000	.980	.962	.951	.957	.952	.966	.956
1560	.901	.897	.895	.912	.893	.883	.877	.887	.924	.921	.950	.932	.958	.975	.980	1.000	.991	.984	.988	.986	.988	.987
1580	.889	.880	.877	.901	.883	.876	.874	.887	.927	.910	.954	.917	.944	.961	.962	.991	1.000	.994	.995	.995	.991	.979
1600	.888	.877	.876	.895	.877	.863	.865	.878	.920	.899	.948	.903	.930	.952	.951	.984	.994	1.000	.992	.997	.985	.972
1620	.900	.890	.887	.908	.884	.874	.870	.881	.921	.902	.945	.907	.936	.957	.957	.988	.995	.992	1.000	.993	.996	.972
1640	.887	.872	.869	.900	.869	.854	.857	.870	.916	.896	.944	.900	.929	.953	.952	.986	.995	.997	.993	1.000	.988	.981
1660	.921	.908	.906	.926	.901	.888	.882	.892	.932	.913	.950	.920	.947	.966	.966	.988	.991	.985	.996	.988	1.000	.970
1680	.874	.862	.857	.874	.850	.830	.832	.844	.888	.890	.920	.900	.927	.953	.956	.987	.979	.972	.972	.981	.970	1.000

Fig.2.3.2a. Frecuencia cualitativa (1 / 0)

>=8	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680	
eglesia	1	1																					
donna	1																						
senmor	1		1																				
c<onfirma>	1	1	1																				
marti<n>	1	1	1	1																			
omne	1																						
p<or>a	1	1	1	1																			
ni<n>gun[oa]	1	1	1	1																			
ot<ro>ssi	1	1	1	1																			
anno	1	1	1	1																			
sanch<o>		1	1	1	1	1																	
p<er>ez	1	1	1	1				1	1														
danno	1																						
derech<o>		1	1	1	1	1	1																
p<ero>	1	1	1	1																			
do<n>	1	1	1	1	1					1				1									
ob<is>po	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
egl<es>ia	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
tie<n>po	1	1	1	1																			
dich<[oa]>		1	1	1	1	1	1	1	1														
otrossi	1	1	1	1																			
m<er>ced		1	1	1	1	1	1	1	1	1													
gr<aci>a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Fig.2.3.2b Matriz de correlación, frecuencia cualitativa, distancia total: 10

Pearson	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
1260	1.000	.368	.333	.160	.088	-.008	-.029	-.056	-.053	-.048	.028	-.063	.014	.063	.102	.134	.191	.213	.143	.226	.139	.186
1280	.368	1.000	.723	.664	.367	.428	.347	.354	.295	.261	.182	.235	.238	.016	.022	.017	.004	.024	.024	-.022	-.009	.049
1300	.333	.723	1.000	.604	.315	.378	.348	.382	.325	.223	.223	.157	.206	.055	.061	.052	-.059	-.034	.061	-.061	.010	.018
1320	.160	.664	.604	1.000	.403	.530	.469	.478	.448	.356	.308	.342	.335	.065	.024	.013	-.071	-.026	.007	-.202	-.010	-.008
1340	.088	.367	.315	.403	1.000	.567	.478	.442	.403	.396	.318	.314	.320	.155	.152	.109	.124	.144	.179	-.044	.130	.127
1360	-.008	.428	.378	.530	.567	1.000	.758	.746	.517	.588	.438	.542	.428	.132	.083	.033	.051	.026	.076	-.109	.066	.085
1380	-.029	.347	.348	.469	.478	.758	1.000	.751	.579	.623	.565	.610	.579	.247	.267	.162	.111	.062	.170	-.084	.113	.147
1400	-.056	.354	.282	.478	.442	.746	.751	1.000	.674	.767	.576	.676	.617	.285	.253	.125	.101	.133	.164	-.070	.106	.169
1420	-.053	.295	.325	.448	.403	.517	.579	.674	1.000	.666	.697	.687	.611	.442	.291	.178	.094	.048	.145	-.061	.124	.188
1440	-.048	.261	.223	.356	.396	.388	.623	.767	.666	1.000	.666	.718	.764	.453	.389	.221	.168	.199	.187	.002	.227	.128
1460	.028	.182	.223	.308	.318	.438	.365	.576	.697	.666	1.000	.736	.709	.535	.404	.355	.290	.217	.291	.158	.213	.347
1480	-.063	.235	.157	.342	.314	.542	.610	.676	.687	.718	.736	1.000	.744	.549	.444	.254	.222	.205	.219	.080	.169	.331
1500	.014	.238	.206	.335	.320	.428	.579	.617	.611	.764	.709	.744	1.000	.536	.498	.378	.261	.299	.275	.152	.260	.357
1520	.063	.016	.055	.065	.155	.132	.247	.285	.442	.453	.535	.549	.536	1.000	.624	.484	.406	.392	.289	.361	.291	.342
1540	.102	.022	.061	.024	.152	.083	.267	.253	.291	.389	.404	.444	.498	.624	1.000	.606	.563	.516	.372	.413	.333	.410
1560	.134	.017	.052	.013	.109	.033	.162	.125	.178	.221	.355	.254	.378	.484	.606	1.000	.726	.647	.465	.621	.507	.545
1580	.191	.004	-.059	-.071	.124	.051	.111	.101	.094	.168	.290	.222	.261	.406	.563	.726	1.000	.702	.549	.711	.563	.669
1600	.213	.024	-.034	-.026	.144	.026	.062	.133	.048	.199	.217	.205	.299	.392	.316	.647	.702	1.000	.565	.712	.581	.719
1620	.143	.024	.061	.007	.179	.076	.170	.164	.145	.187	.291	.219	.275	.289	.372	.465	.549	.565	1.000	.539	.684	.695
1640	.226	-.022	-.061	-.202	-.044	-.109	-.084	-.070	-.061	.002	.158	.080	.152	.361	.413	.621	.711	.712	.539	1.000	.577	.700
1660	.139	-.009	.010	-.010	.130	.066	.113	.106	.124	.227	.213	.169	.260	.291	.333	.507	.563	.581	.684	.577	1.000	.730
1680	.186	.049	.018	-.008	.127	.085	.147	.169	.188	.228	.347	.331	.357	.342	.410	.545	.669	.719	.695	.700	.730	1.000

Fig.2.3.3a. Frecuencia logarítmica

Log	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680	
eglesia	6.000	3.000																					
donna	6.209	2.000	1.585																				
senmor	5.044	1.585	3.907	2.322																			
c<onfirma>	6.129	6.883	8.633																				
marti<n>	5.644	6.340	3.907	3.807					1.000														
omne	4.459		1.000																				
p<or>a	6.741	6.150	7.401	5.728	1.585			2.585															
ni<n>gun[oa]	7.209	7.140	7.870	6.524		2.807	1.000																
ot<ro>ssi	3.000	4.807	7.845	4.954	2.322	2.322	1.000																
anno	8.082	6.989	5.615	3.170									1.585		1.000		1.000						
sanch<o>		5.000	7.637	6.000	4.000	3.322	2.000									1.000							
p<er>ez	7.011	6.977	8.205	6.585	2.585	2.000	2.000	3.322	3.907	1.000	1.000	1.585	2.000										
danno	5.700	2.807	1.000																				
derech<o>	1.585	5.044	6.931	6.150	2.585	4.324	4.248	2.000															
p<ero>	7.721	5.129	7.033	5.728				1.000						1.000		2.322		1.000	1.000				
do<n>	8.820	6.820	8.418	8.103	5.044		1.585	1.585	3.700	2.585			2.585	3.907	2.000							2.000	
ob<is>po	9.167	8.607	9.437	8.098	5.615	3.700	5.044	3.459	5.129	2.000	3.170	4.000	3.907	4.000	2.585	2.322							
egl<es>ia	6.895	7.087	8.267	6.508	3.170	6.883	6.066	2.000	5.044		3.907	3.585											
tie<n>po	4.248	4.087	6.658	5.492	2.322		2.000	2.000	2.807		2.585	1.000											
dich<[oa]>	1.000	6.109	8.371	8.693	5.833	7.948	7.285	6.768	2.807	1.000			1.585										
otrossi	7.066	6.285	6.807	3.459			1.000																2.322
m<er>ced	1.000	4.755	7.238	6.044	4.000	5.728	4.459	5.781	4.392		1.000												
gr<aci>a	7.516	7.983	8.082	5.700	3.170	2.000	3.170	2.322	3.585	2.585	2.807	3.585	3.170	3.000	3.585	1.585							

Fig.2.3.3b. Matriz de correlación, frecuencia logarítmica, distancia total: 6

Pearson	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
1260	1.000	.796	.682	.567	.465	.377	.376	.322	.348	.309	.379	.286	.373	.366	.396	.436	.467	.493	.440	.440	.430	.462
1280	.796	1.000	.909	.815	.733	.652	.617	.580	.551	.477	.502	.440	.448	.375	.362	.323	.333	.316	.341	.262	.311	.347
1300	.682	.909	1.000	.892	.789	.730	.676	.635	.606	.528	.520	.470	.469	.382	.354	.286	.260	.272	.289	.187	.278	.378
1320	.567	.815	.892	1.000	.841	.820	.794	.752	.706	.634	.570	.552	.536	.423	.379	.288	.236	.246	.269	.143	.264	.332
1340	.465	.733	.789	.841	1.000	.858	.807	.771	.735	.672	.628	.593	.589	.480	.439	.296	.256	.248	.294	.147	.260	.332
1360	.377	.652	.730	.820	.858	1.000	.917	.856	.764	.735	.666	.665	.637	.504	.470	.303	.262	.260	.252	.124	.240	.314
1380	.376	.617	.676	.794	.807	.917	1.000	.906	.850	.818	.775	.765	.749	.608	.556	.393	.347	.320	.298	.188	.282	.394
1400	.322	.580	.635	.752	.771	.856	.906	1.000	.891	.877	.790	.821	.776	.668	.599	.391	.356	.331	.313	.190	.283	.391
1420	.348	.551	.606	.706	.735	.764	.850	.891	1.000	.895	.892	.872	.845	.768	.682	.495	.454	.420	.410	.321	.385	.404
1440	.309	.477	.528	.634	.672	.735	.818	.877	.895	1.000	.866	.907	.887	.802	.722	.508	.459	.423	.377	.290	.361	.387
1460	.379	.502	.520	.570	.628	.666	.775	.790	.892	.866	1.000	.897	.905	.850	.772	.634	.617	.561	.527	.470	.478	.531
1480	.286	.440	.470	.552	.593	.665	.765	.821	.872	.907	.897	1.000	.918	.859	.785	.575	.535	.484	.445	.366	.400	.465
1500	.373	.448	.469	.536	.589	.637	.749	.776	.845	.887	.905	.918	1.000	.908	.859	.687	.639	.610	.541	.478	.523	.555
1520	.366	.375	.382	.423	.480	.504	.608	.668	.768	.802	.850	.859	.908	1.000	.918	.785	.739	.701	.609	.599	.592	.626
1540	.396	.362	.354	.379	.439	.470	.556	.599	.682	.722	.772	.785	.859	.918	1.000	.864	.808	.760	.671	.649	.636	.660
1560	.436	.323	.286	.288	.296	.303	.393	.391	.495	.508	.634	.575	.687	.785	.864	1.000	.908	.883	.807	.840	.785	.805
1580	.467	.333	.260	.236	.256	.262	.347	.356	.454	.459	.617	.535	.639	.739	.808	.908	1.000	.921	.851	.899	.807	.865
1600	.493	.316	.272	.246	.248	.260	.320	.331	.420	.423	.561	.484	.610	.701	.760	.883	.921	1.000	.875	.906	.857	.884
1620	.440	.341	.289	.269	.294	.252	.298	.313	.410	.377	.527	.445	.541	.609	.671	.807	.851	.875	1.000	.870	.916	.863
1640	.440	.262	.187	.143	.147	.124	.188	.190	.321	.290	.470	.366	.478	.599	.649	.840	.899	.906	.870	1.000	.849	.904
1660	.430	.311	.278	.264	.260	.240	.282	.283	.385	.361	.478	.400	.523	.592	.636	.785	.807	.857	.916	.849	1.000	.868
1680	.462	.347	.278	.232	.232	.214	.294	.291	.404	.387	.531	.465	.555	.626	.660	.805	.865	.884	.863	.904	.868	1.000

Fig.2.3.4a. Frecuencia ordinal ascendente

A.R.S.c	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
eglesia	91	32	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
donna	98	21	14	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
sennor	71	20	33	34	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
c<onfirma>	94	15	33	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
marti<n>	83	107	33	52	44	1	1	1	31	1	1	1	1	1	1	1	1	1	1	1	1	1
omne	57	1	10	1	1	1	1	30	1	1	1	1	1	1	1	1	1	1	1	1	1	1
p<or>a	104	102	107	90	65	1	1	62	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ni<n>gun[oa]	116	123	116	14	44	72	37	1	1	1	23	1	1	18	1	1	1	1	1	1	1	1
ot<ro>ssi	31	71	14	72	80	67	37	1	24	1	1	1	1	1	1	1	1	1	1	1	1	1
anno	131	119	58	43	1	1	1	1	1	1	1	1	29	1	38	1	63	58	1	1	1	1
sanch<o>	1	74	112	99	118	80	49	1	1	1	1	1	1	1	1	54	1	1	1	1	1	1
p<er>ez	111	118	123	115	86	60	49	69	54	40	31	38	36	18	1	1	1	1	1	1	1	1
danno	85	27	10	1	1	1	1	1	1	1	1	1	1	1	1	1	46	1	1	1	1	1
derech<o>	19	75	91	107	86	105	90	53	24	1	1	1	18	1	1	1	1	1	1	1	1	1
p<ero>	126	79	95	90	44	1	1	41	24	1	1	34	1	36	27	54	63	1	1	1	1	1
do<n>	140	114	128	141	130	1	44	46	53	63	23	47	73	32	27	1	1	1	1	84	1	81
ob<is>po	144	141	143	140	140	91	106	71	92	57	62	70	73	63	56	77	46	58	1	1	89	1
egl<es>ia	109	121	125	112	105	140	131	53	87	1	76	61	1	1	1	1	1	1	1	1	1	1
tie<n>po	53	52	84	85	80	45	49	53	43	31	52	34	18	18	1	1	1	1	1	1	1	1
dich<[oa]>	16	101	127	146	142	149	143	135	43	40	1	1	29	18	1	1	1	1	1	1	1	1
otrossi	113	106	88	47	1	1	37	1	24	1	1	1	1	1	1	1	1	1	1	1	1	104
m<er>ced	16	68	102	102	118	128	93	117	70	31	31	27	18	1	1	1	1	1	1	1	1	1
gr<aci>a	122	135	119	89	105	60	73	59	51	63	55	61	57	44	85	64	1	58	1	1	1	1

Fig.2.3.4b. Matriz de correlación, frecuencia ordinal ascendente, distancia total: 2

Pearson	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
1260	1.000	.774	.647	.525	.345	.274	.299	.233	.281	.195	.293	.197	.288	.272	.299	.322	.352	.383	.240	.296	.261	.393
1280	.774	1.000	.897	.784	.685	.579	.563	.505	.498	.403	.420	.364	.387	.294	.254	.176	.166	.163	.069	.076	.087	.235
1300	.647	.897	1.000	.889	.800	.712	.654	.608	.577	.486	.461	.432	.421	.315	.253	.130	.091	.102	.006	-.005	.048	.149
1320	.525	.784	.889	1.000	.874	.811	.778	.733	.689	.605	.528	.519	.500	.379	.302	.151	.078	.097	-.010	.005	.049	.110
1340	.345	.685	.800	.874	1.000	.836	.761	.745	.716	.653	.574	.541	.522	.392	.301	.096	.030	.041	-.058	-.082	-.058	.024
1360	.274	.579	.712	.811	.836	1.000	.896	.827	.750	.706	.619	.610	.580	.437	.358	.124	.079	.072	-.046	-.071	-.015	-.001
1380	.299	.563	.654	.778	.761	.896	1.000	.877	.839	.787	.742	.721	.707	.559	.459	.244	.195	.155	.018	.030	.039	.115
1400	.233	.505	.608	.733	.745	.827	.877	1.000	.871	.866	.759	.801	.755	.652	.530	.260	.231	.180	.051	.040	.062	.124
1420	.281	.498	.577	.689	.716	.750	.839	.871	1.000	.895	.883	.861	.832	.752	.635	.394	.360	.294	.185	.199	.181	.285
1440	.195	.403	.486	.605	.653	.706	.787	.866	.895	1.000	.842	.897	.870	.781	.663	.381	.318	.265	.139	.148	.130	.220
1460	.293	.420	.461	.528	.574	.619	.742	.759	.883	.842	1.000	.888	.894	.834	.729	.542	.521	.437	.335	.339	.284	.384
1480	.197	.364	.432	.519	.541	.610	.721	.801	.861	.897	.888	1.000	.911	.848	.742	.481	.449	.364	.254	.244	.229	.337
1500	.288	.387	.421	.500	.522	.580	.707	.755	.832	.870	.894	.911	1.000	.890	.827	.594	.542	.494	.336	.342	.331	.415
1520	.272	.294	.315	.379	.392	.437	.559	.652	.752	.781	.834	.848	.890	1.000	.906	.750	.696	.642	.495	.520	.488	.543
1540	.299	.254	.253	.302	.301	.358	.459	.530	.635	.663	.729	.742	.827	.906	1.000	.841	.770	.718	.546	.569	.549	.559
1560	.322	.176	.130	.151	.096	.124	.244	.260	.394	.381	.542	.481	.594	.750	.841	1.000	.857	.831	.705	.765	.733	.705
1580	.352	.166	.091	.078	.030	.079	.195	.231	.360	.318	.521	.449	.542	.696	.770	.857	1.000	.876	.805	.816	.729	.754
1600	.383	.163	.102	.097	.041	.072	.155	.180	.294	.265	.437	.364	.494	.642	.718	.831	.876	1.000	.806	.836	.780	.791
1620	.240	.069	.006	-.010	-.058	-.046	.018	.051	.185	.139	.335	.254	.336	.495	.546	.705	.805	.806	1.000	.880	.802	.759
1640	.296	.076	-.005	.005	-.082	-.071	.030	.040	.199	.148	.339	.244	.342	.520	.569	.765	.816	.836	.880	1.000	.812	.844
1660	.261	.087	.048	.049	-.058	-.015	.039	.062	.181	.130	.284	.229	.331	.488	.549	.733	.729	.780	.802	.812	1.000	.733
1680	.393	.235	.149	.110	.024	-.001	.115	.124	.285	.220	.384	.337	.415	.543	.559	.705	.754	.791	.759	.844	.733	1.000

1440	1460
.195	.293
.403	.420
.486	.461
.605	.528
.653	.574
.706	.619
.787	.742
.866	.759
.895	.883
1.000	.842
.842	1.000
.897	.888
.870	.894
.781	.834
.663	.729
.381	.542
.318	.521
.265	.437
.139	.335
.148	.339
.130	.284
.220	.384

Fig.2.3.4c. Extractos de 1440 y 1460

3. 年代推定の実験

3.1. 有年代文書による実験

Fig.3.1a. Matriz de correlación. CODEA:0001 (1260)

Pearson	1260c	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680
1260c1	1.000	.643	.572	.512	.495	.551	.554	.560	.576	.545	.557	.597	.523	.572	.529	.598	.537	.598	.599	.525	.521	.596	.596
1260	.643	1.000	.772	.645	.522	.543	.273	.297	.231	.279	.193	.291	.195	.286	.272	.299	.323	.352	.384	.240	.297	.261	.393
1280	.572	.772	1.000	.897	.784	.685	.579	.563	.505	.498	.403	.420	.364	.387	.294	.254	.176	.166	.163	.069	.076	.087	.235
1300	.512	.645	.897	1.000	.889	.800	.712	.654	.608	.577	.486	.461	.432	.421	.315	.253	.130	.091	.102	.006	-.005	.048	.149
1320	.495	.522	.784	.889	1.000	.874	.811	.778	.733	.689	.605	.528	.519	.500	.379	.302	.151	.078	.097	-.010	.005	.049	.110
1340	.551	.543	.685	.800	.874	1.000	.836	.761	.745	.716	.653	.574	.541	.522	.392	.301	.096	.030	.041	-.058	-.082	-.058	.024
1360	.554	.273	.579	.712	.811	.836	1.000	.896	.827	.750	.706	.619	.610	.580	.437	.358	.124	.079	.072	-.046	-.071	-.015	-.001
1380	.560	.297	.563	.654	.778	.761	.896	1.000	.877	.839	.787	.742	.721	.707	.559	.459	.244	.195	.155	.018	.030	.039	.115
1400	.576	.231	.505	.608	.733	.745	.827	.877	1.000	.871	.866	.759	.801	.755	.652	.530	.260	.231	.180	.051	.040	.062	.124
1420	.545	.279	.498	.577	.689	.716	.750	.839	.871	1.000	.895	.883	.861	.832	.752	.635	.394	.360	.294	.185	.199	.181	.285
1440	.557	.193	.403	.486	.605	.653	.706	.787	.866	.895	1.000	.842	.897	.870	.781	.663	.381	.318	.265	.139	.148	.130	.220
1460	.597	.291	.420	.461	.528	.574	.619	.742	.759	.883	.842	1.000	.888	.894	.834	.729	.542	.521	.437	.335	.339	.284	.384
1480	.523	.195	.364	.432	.519	.541	.610	.721	.801	.861	.897	.888	1.000	.911	.848	.742	.481	.449	.364	.254	.244	.229	.337
1500	.572	.286	.387	.421	.500	.522	.580	.707	.755	.832	.870	.894	.911	1.000	.890	.827	.594	.542	.494	.336	.342	.331	.415
1520	.529	.272	.294	.315	.379	.392	.437	.559	.652	.752	.781	.834	.848	.890	1.000	.906	.750	.696	.642	.495	.520	.488	.543
1540	.598	.299	.254	.253	.302	.301	.358	.459	.530	.635	.663	.729	.742	.827	.906	1.000	.841	.770	.718	.546	.569	.549	.559
1560	.537	.323	.176	.130	.151	.096	.124	.244	.260	.394	.381	.542	.481	.594	.750	.841	1.000	.857	.831	.705	.765	.733	.705
1580	.598	.352	.166	.091	.078	.030	.079	.195	.231	.360	.318	.521	.449	.542	.696	.770	.857	1.000	.876	.805	.816	.729	.754
1600	.599	.384	.163	.102	.097	.041	.072	.155	.180	.294	.265	.437	.364	.494	.642	.718	.831	.876	1.000	.806	.836	.780	.791
1620	.525	.240	.069	.006	-.010	-.058	-.046	.018	.051	.185	.139	.335	.254	.336	.495	.546	.705	.805	.806	1.000	.880	.802	.759
1640	.521	.297	.076	-.005	.005	-.082	-.071	.030	.040	.199	.148	.339	.244	.342	.520	.609	.765	.816	.836	.880	1.000	.812	.844
1660	.596	.261	.087	.048	.049	-.058	-.015	.039	.062	.181	.130	.284	.229	.331	.488	.549	.733	.729	.780	.802	.812	1.000	.733
1680	.596	.393	.235	.149	.110	.024	-.001	.115	.124	.285	.220	.384	.337	.415	.543	.559	.705	.754	.791	.759	.844	.733	1.000

Pearson	1260c1
1260c1	1.000
1260	.643
1280	.572
1300	.512

Fig.3.1b. Ampliación

Fig.3.1c. Experimentos con siete documentos con fecha

Documento	Región	Tipo d.	Año	*Año est.	correl.	Diferencia
C:0001	AN	C	1260	*1260	.643	+ - 0
Sal:091	CV	C	1260	*1280	.774	+ 20
C:0125	CN	C	1340	*1360	.649	+ 20
C:0210	CV	M	1420	*1460	.584	+ 40
C:0022	CV	C	1500	*1460	.664	- 40
C:0030	CV	C	1580	*1560	.591	- 20
C:1050	AN	E	1640	*1660	.576	+ 20

3.2. 無年代文書への適用

Fig.3.2.1. Matriz de correlación. C1, CODEA:0854 sin fecha = *1280

Pearson	1260	1280	1300	1320	1340	1360	1380	1400	1420	1440	1460	1480	1500	1520	1540	1560	1580	1600	1620	1640	1660	1680	X
1260	1.000	.774	.647	.525	.345	.274	.299	.233	.281	.195	.293	.197	.288	.272	.299	.322	.352	.383	.240	.296	.261	.393	.484
1280	.774	1.000	.897	.784	.685	.579	.563	.505	.498	.403	.420	.364	.387	.294	.254	.176	.166	.163	.069	.076	.087	.235	.522
1300	.647	.897	1.000	.889	.800	.712	.654	.608	.577	.486	.461	.432	.421	.315	.253	.130	.091	.02	.006	-.005	.048	.149	.501
1320	.525	.784	.889	1.000	.874	.811	.778	.733	.689	.605	.528	.519	.500	.379	.302	.151	.078	.097	-.010	.005	.049	.110	.449
1340	.345	.685	.800	.874	1.000	.836	.761	.745	.716	.653	.574	.541	.522	.392	.301	.096	.030	.041	-.058	-.082	-.058	.024	.453
1360	.274	.579	.712	.811	.836	1.000	.896	.827	.750	.706	.619	.510	.580	.437	.358	.124	.079	.072	-.046	-.071	-.015	-.001	.401
1380	.299	.563	.654	.778	.761	.896	1.000	.877	.839	.787	.742	.721	.707	.559	.459	.244	.195	.155	.018	.030	.039	.115	.414
1400	.233	.505	.608	.733	.745	.827	.877	1.000	.871	.866	.759	.801	.755	.652	.530	.260	.231	.180	.051	.040	.062	.124	.394
1420	.281	.498	.577	.689	.716	.750	.839	.871	1.000	.895	.883	.861	.832	.752	.635	.394	.360	.294	.185	.199	.181	.285	.429
1440	.195	.403	.486	.605	.653	.706	.787	.866	.895	1.000	.842	.897	.870	.781	.663	.381	.318	.265	.139	.148	.130	.220	.421
1460	.293	.420	.461	.528	.574	.619	.742	.759	.883	.842	1.000	.888	.894	.834	.729	.542	.521	.437	.335	.339	.284	.384	.425
1480	.197	.364	.432	.519	.541	.610	.721	.801	.861	.897	.888	1.000	.911	.848	.742	.481	.449	.364	.254	.244	.229	.337	.407
1500	.288	.387	.421	.500	.522	.580	.707	.755	.832	.870	.894	.911	1.000	.890	.827	.594	.542	.494	.336	.342	.331	.415	.409
1520	.272	.294	.315	.379	.392	.437	.559	.652	.752	.781	.834	.848	.890	1.000	.906	.750	.696	.642	.495	.520	.488	.543	.403
1540	.299	.254	.253	.302	.301	.358	.459	.530	.635	.663	.729	.742	.827	.906	1.000	.841	.770	.718	.546	.569	.549	.559	.401
1560	.322	.176	.130	.151	.096	.124	.244	.260	.394	.381	.542	.481	.594	.750	.841	1.000	.857	.831	.705	.765	.733	.705	.343
1580	.352	.166	.091	.078	.030	.079	.195	.231	.360	.318	.521	.449	.542	.696	.770	.857	1.000	.876	.805	.816	.729	.754	.336
1600	.383	.163	.102	.097	.041	.072	.155	.180	.294	.265	.437	.364	.494	.642	.718	.831	.876	1.000	.806	.836	.780	.791	.339
1620	.240	.069	.006	-.010	-.058	-.046	.018	.051	.185	.139	.335	.254	.336	.495	.546	.705	.805	.806	1.000	.880	.802	.759	.319
1640	.296	.076	-.005	.005	-.082	-.071	.030	.040	.199	.148	.339	.244	.342	.520	.569	.765	.816	.836	.880	1.000	.812	.844	.284
1660	.261	.087	.048	.049	-.058	-.015	.039	.062	.181	.130	.284	.229	.331	.488	.549	.733	.729	.780	.802	.812	1.000	.733	.246
1680	.393	.235	.149	.110	.024	-.001	.115	.124	.285	.220	.384	.337	.415	.543	.559	.705	.754	.791	.759	.844	.733	1.000	.318
X	.484	.522	.501	.449	.453	.401	.414	.394	.429	.421	.425	.407	.409	.403	.401	.343	.336	.339	.319	.284	.246	.318	1.000

Don alfonso por la gr<aci>a de dios Rey de Castiell<a> de Toledo de Leo<n> de Gallizia de Seuill<a> de Cordoua de Murçia de jah<e>n & del algarb<e>. (...) Era de mill. & ccc. **** an<n>os P<edro> ioh<a>n la ffizo escriujr por ma<n>dado del Rey.

[Alfonso X (1252-1284) * 38 a.C., pacificación de toda Hispania, Octavio Augusto decretó la Aera Hispanica]

Pearson	1260	(...)	1680	X
1260	1.000	(...)	.393	.510
1280	.774	(...)	.235	.448
1300	.647	(...)	.149	.388
1320	.525	(...)	.110	.345
1340	.345	(...)	.024	.281
1360	.274	(...)	-.001	.253
1380	.299	(...)	.115	.241
1400	.233	(...)	.124	.267
1420	.281	(...)	.285	.300

Fig.3.2.2. Datación *1260

Connocida cosa sea. A todos los omnes que esta carta vieren. Como yo Infante **don Anric. fijo del Rey don fferrando. Rey de Castiella. e de Toledo. e de LeoN. e de Gallizia. e de Seuilla. e de Cordoua. e de Murcia. e de Jaen.**

[Infante Enrique de Castilla (1230-1304), hijo de Fernando III]

Pearson	1260	1280	(...)	1660	1680	X
1260	1.000	.774	(...)	.261	.393	.308
1280	.774	1.000	(...)	.087	.235	.341
1300	.647	.897	(...)	.048	.149	.392
1320	.525	.784	(...)	.049	.110	.426
1340	.345	.685	(...)	-.058	.024	.436
1360	.274	.579	(...)	-.015	-.001	.430
1380	.299	.563	(...)	.039	.115	.447
1400	.233	.505	(...)	.062	.124	.450
1420	.281	.498	(...)	.181	.285	.456
1440	.195	.403	(...)	.130	.220	.424
1460	.293	.420	(...)	.284	.384	.464

Fig. 3.2.3. Datación *1460

(...) muy alta y muy poderosa **p<ri>ncessa dona ana** por la graçia de dios **Reyna de Francia duq<ue>ssa debretan<n>a** ec<etera> n<uest>ra muy cara y muy amada hermana y sobrina (nos tachado) ec<etera> Recebimos v<uest>ra carta q<ue> nos truxo el sen<n>or de borne v<uest>ro panatier [Princesa Ana es duquesa de Bretaña, Reina de Francia (1492-1514)]

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