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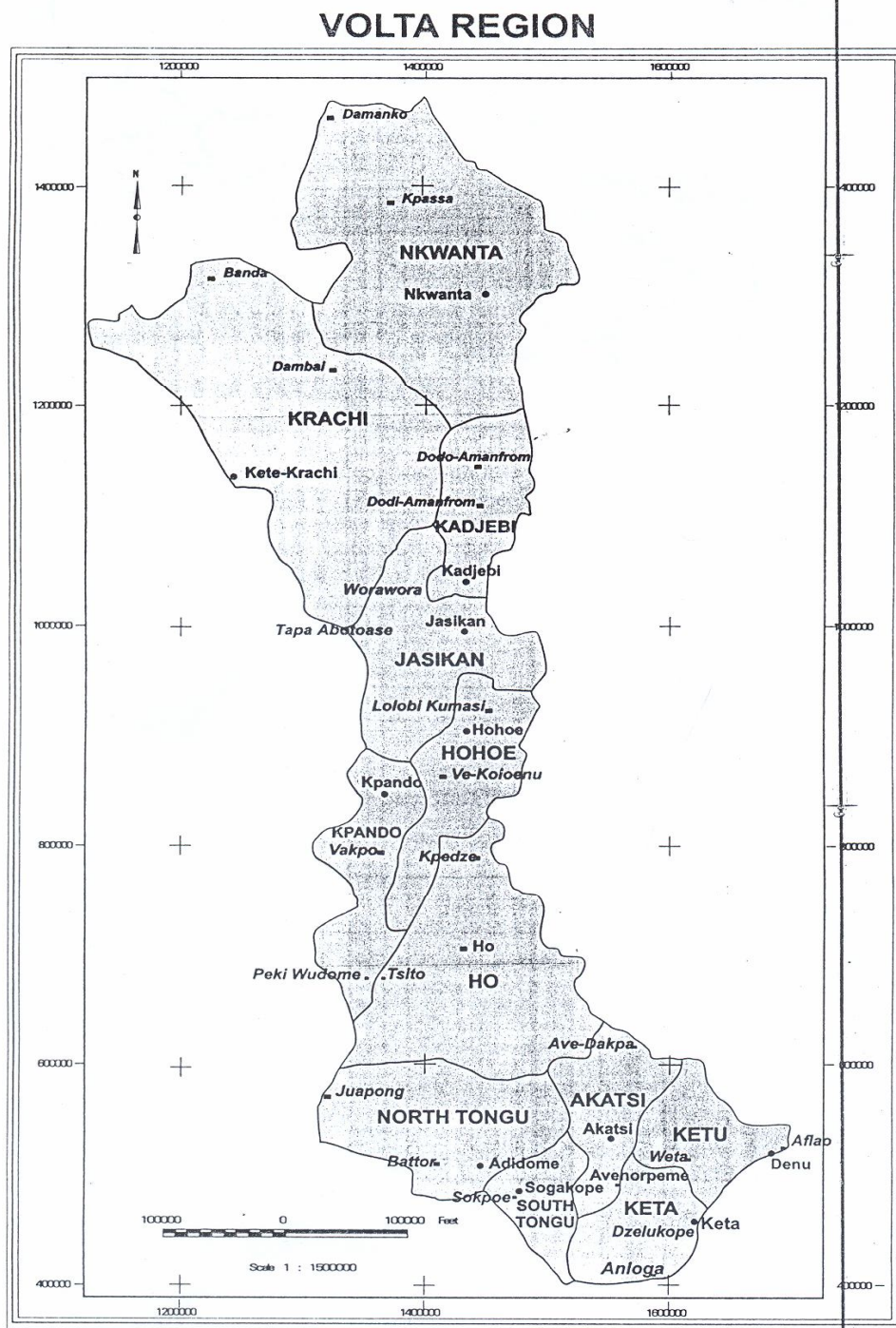
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**APPENDIX A I**  
 A map of the Volta Region Showing Study Areas



## **APPENDIX A II**

Waveforms and Spectrograms of eight vowels and their nasalized counterparts as produced by Aŋɔ speakers.



**APPENDIX B**  
**The formant values of three tokens of eight Ewe oral Vowels as produced**  
**by Anɔ speakers**

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
1.1	248	2086	1838	522	2241	1719	367	2164	1797	547	1286	739	750	1347	597	341
1.2	279	2091	1812	530	1540	1010	400	2055	1655	479	1456	977	715	1290	575	274
1.3	334	2243	1909	-	-	-	349	2066	1717	476	1386	910	709	1288	579	324
Average	<b>287</b>	<b>2140</b>	<b>1853</b>	<b>526</b>	<b>1890.5</b>	<b>1364.5</b>	<b>372</b>	<b>2095</b>	<b>1723</b>	<b>500</b>	<b>1376</b>	<b>876</b>	<b>724</b>	<b>1308</b>	<b>584</b>	<b>313</b>
2.1	307	2292	1985	602	2436	1834	392	2180	1788	599	1435	836	849	1384	535	371
2.2	326	2204	1878	609	2207	1598	372	2212	1840	598	1530	932	828	1439	611	312
2.3	300	1487	1187	596	2498	1902	404	2135	1731	603	1445	842	895	1283	388	306
Average	<b>311</b>	<b>1994</b>	<b>1684</b>	<b>602</b>	<b>2380</b>	<b>1778</b>	<b>389</b>	<b>2175</b>	<b>1786</b>	<b>600</b>	<b>1470</b>	<b>870</b>	<b>857</b>	<b>1368</b>	<b>511</b>	<b>329</b>
3.1	272	2638	2366	532	1543	1011	467	1948	1481	469	1256	787	642	1173	531	276
3.2	278	2050	1772	557	1468	911	386	2051	1665	544	1339	795	672	1286	614	221
3.3	252	2009	1757	554	1476	922	397	1897	1500	502	1063	561	768	1310	542	290
Average	<b>267</b>	<b>2232</b>	<b>1965</b>	<b>547</b>	<b>1495</b>	<b>948</b>	<b>416</b>	<b>1965</b>	<b>1549</b>	<b>505</b>	<b>1297</b>	<b>792</b>	<b>694</b>	<b>1256</b>	<b>562</b>	<b>262</b>
4.1	252	2026	1774	541	1593	1052	333	1958	1625	533	1641	1108	699	1315	616	361
4.2	249	1924	1675	534	1584	1050	315	1963	1648	551	1515	964	689	1380	691	329
4.3	254	1874	1620	516	1530	1014	314	1897	1583	481	1528	1047	791	1359	568	322
Average	<b>251</b>	<b>1941</b>	<b>169</b>	<b>530</b>	<b>1569</b>	<b>1039</b>	<b>320</b>	<b>1939</b>	<b>1619</b>	<b>521</b>	<b>1561</b>	<b>1040</b>	<b>726</b>	<b>1351</b>	<b>625</b>	<b>337</b>
5.1	257	1995	1738	530	1624	1094	337	1888	1551	538	1510	972	698	1346	648	361
5.2	245	1931	1686	523	1603	1080	290	1901	1611	555	1522	967	780	1348	568	387
5.3	258	1871	1613	511	1579	1068	302	1827	1525	466	1533	1067	683	1269	586	301
Average	<b>253</b>	<b>1932</b>	<b>1679</b>	<b>521</b>	<b>1602</b>	<b>1081</b>	<b>309</b>	<b>1872</b>	<b>1563</b>	<b>519</b>	<b>1565</b>	<b>1046</b>	<b>720</b>	<b>1321</b>	<b>601</b>	<b>349</b>
6.1	274	2481	2207	599	1625	1026	542	2073	1531	560	2174	1614	888	1622	734	351
6.2	268	2278	2010	597	1903	1306	470	2209	1739	599	2085	1486	895	1573	678	344
6.3	287	2354	2067	586	2144	1558	486	2116	1630	549	2087	1538	892	1559	667	376
Average	<b>276</b>	<b>2371</b>	<b>2095</b>	<b>594</b>	<b>1890</b>	<b>1296</b>	<b>499</b>	<b>2132</b>	<b>1633</b>	<b>569</b>	<b>2115</b>	<b>1546</b>	<b>891</b>	<b>1584</b>	<b>693</b>	<b>357</b>
7.1	321	2652	2331	562	2099	1537	444	2382	1938	544	2057	1513	788	1587	799	380
7.2	270	2498	2228	568	1900	1332	570	2128	1558	554	1963	1409	809	1565	756	356
7.3	251	2443	2192	581	1946	1365	564	2097	1533	-	-	-	827	1547	720	422
Average	<b>280</b>	<b>2551</b>	<b>2251</b>	<b>570</b>	<b>1890</b>	<b>1411</b>	<b>526</b>	<b>2202</b>	<b>1676</b>	<b>549</b>	<b>2010</b>	<b>1461</b>	<b>808</b>	<b>1566</b>	<b>758</b>	<b>389</b>
8.1	339	2400	2091	377	1465	1088	408	2414	2006	586	1366	780	819	1558	739	347
8.2	376	2492	2016	645	1523	878	375	2378	2003	-	-	-	817	1576	759	468
8.3	357	2319	1962	673	1388	715	368	2443	2055	546	1564	1018	766	1445	679	375
Average	<b>351</b>	<b>2403</b>	<b>2052</b>	<b>565</b>	<b>1458</b>	<b>893</b>	<b>383</b>	<b>2411</b>	<b>2028</b>	<b>566</b>	<b>1465</b>	<b>899</b>	<b>800</b>	<b>1535</b>	<b>676</b>	<b>396</b>
Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
9.1	298	2201	1903	418	1352	934	357	2068	1711	526	1255	729	913	1592	679	-
9.2	291	2099	1808	476	1395	919	327	2217	1890	519	1290	771	850	1570	720	356
9.3	270	2238	1968	411	1406	995	341	2032	1691	530	1248	718	814	1443	629	-
Average	<b>286</b>	<b>2179</b>	<b>1893</b>	<b>435</b>	<b>1384</b>	<b>949</b>	<b>341</b>	<b>2105</b>	<b>1764</b>	<b>525</b>	<b>1265</b>	<b>739</b>	<b>859</b>	<b>1535</b>	<b>676</b>	<b>356</b>
10.1	319	2355	2036	645	1500	885	424	2120	1696	558	1511	953	868	1567	702	407
10.2	402	2242	1840	582	1484	902	394	2053	1659	528	1499	971	849	1664	815	378
10.3	348	2234	1886	563	1499	936	383	2231	1848	515	1513	998	783	1650	867	383
Average	356	2277	1921	533	1507	974	400	2134	1734	572	1491	919	832	1627	795	389

**The formant values of three tokens of eight Ewe oral Vowels as produced by Avenor speakers**

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
1.1	260	1924	1664	553	1918	1365	547	1872	1325	646	1553	907	818	1427	609	300
1.2	251	1670	1419	578	1887	1309	612	1772	1160	601	1466	865	782	1533	751	273
1.3	282	1958	1676	579	1826	1247	557	2075	1518	628	1473	845	844	1396	552	432
Average	<b>264</b>	<b>1850</b>	<b>1586</b>	<b>570</b>	<b>1877</b>	<b>1307</b>	<b>572</b>	<b>1906</b>	<b>1334</b>	<b>625</b>	<b>1497</b>	<b>872</b>	<b>814</b>	<b>1452</b>	<b>638</b>	<b>305</b>
2.1	322	1745	1423	555	1362	807	347	1965	1618	579	1375	796	745	1280	535	335
2.2	309	2797	2488	547	1482	935	392	1925	1533	586	1328	742	774	1339	565	317
2.3	267	1940	1673	542	1389	847	357	1928	1571	539	1354	815	797	1365	568	378
Average	<b>366</b>	<b>2160</b>	<b>1794</b>	<b>548</b>	<b>1411</b>	<b>863</b>	<b>365</b>	<b>1938</b>	<b>1573</b>	<b>568</b>	<b>1352</b>	<b>784</b>	<b>772</b>	<b>1328</b>	<b>556</b>	<b>343</b>
3.1	390	2025	1635	599	1357	758	511	1977	1466	520	1356	836	765	1261	496	349
3.2	298	2084	1786	543	1424	881	437	1952	1515	525	1344	819	790	1176	386	335
3.3	309	2084	1775	520	1401	881	453	1846	1393	502	1352	850	721	1281	560	367
Average	<b>332</b>	<b>2064</b>	<b>1732</b>	<b>554</b>	<b>1394</b>	<b>840</b>	<b>467</b>	<b>1925</b>	<b>1458</b>	<b>515</b>	<b>1350</b>	<b>835</b>	<b>758</b>	<b>1239</b>	<b>481</b>	<b>350</b>
4.1	328	2114	1786	557	1430	873	394	1943	1549	520	1373	853	721	1387	666	373
4.2	313	1978	1665	324	1457	933	411	1976	1565	536	1319	783	807	1337	536	449
4.3	337	2102	1765	599	1392	793	376	2054	1678	532	1445	913	673	1448	775	365
Average	<b>326</b>	<b>2064</b>	<b>1738</b>	<b>560</b>	<b>1426</b>	<b>866</b>	<b>393</b>	<b>1991</b>	<b>1598</b>	<b>529</b>	<b>1379</b>	<b>850</b>	<b>731</b>	<b>1390</b>	<b>660</b>	<b>395</b>
5.1	218	1704	1486	586	1701	1115	586	1880	1294	525	1436	911	683	1090	407	307
5.2	303	1760	1457	528	1650	1122	561	1926	1565	512	1294	782	669	1063	394	297
5.3	279	2548	2269	500	1733	1233	558	1762	1204	476	1430	954	718	1042	324	290
Average	<b>266</b>	<b>2004</b>	<b>1738</b>	<b>538</b>	<b>1694</b>	<b>1156</b>	<b>568</b>	<b>1856</b>	<b>1288</b>	<b>504</b>	<b>1386</b>	<b>882</b>	<b>690</b>	<b>1065</b>	<b>375</b>	<b>298</b>
6.1	344	2616	2272	698	1360	662	533	2117	1584	616	1464	848	904	1658	754	372
6.2	298	2746	2448	695	1546	851	565	2227	1662	652	1380	728	906	1444	538	367
6.3	320	2660	2340	686	1739	1053	666	2085	1419	632	1566	934	942	1554	612	368
Average	<b>320</b>	<b>2674</b>	<b>2354</b>	<b>693</b>	<b>1548</b>	<b>855</b>	<b>588</b>	<b>2143</b>	<b>1555</b>	<b>633</b>	<b>1470</b>	<b>837</b>	<b>917</b>	<b>1552</b>	<b>635</b>	<b>369</b>
7.1	306	2596	2290	534	1683	1149	508	2344	1836	562	1275	713	936	1570	634	324
7.2	354	2658	2304	572	1484	912	531	2331	1800	553	1435	882	868	1565	697	342
7.3	391	2723	2332	576	1529	953	535	2283	1748	554	1443	889	850	1162	312	364
Average	<b>350</b>	<b>2659</b>	<b>2309</b>	<b>560</b>	<b>1565</b>	<b>1005</b>	<b>524</b>	<b>2320</b>	<b>1796</b>	<b>556</b>	<b>1384</b>	<b>828</b>	<b>884</b>	<b>1432</b>	<b>548</b>	<b>343</b>



**The formant values of three tokens of eight Ewe oral Vowels as produced by Ho speakers**

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1
1.1	330	2204	1874	482	1877	1395	531	1980	1449	498	1785	1287	719	1358	639	377
1.2	327	2298	1971	481	1923	1442	524	1799	1275	481	1764	1283	723	1433	710	327
1.3	245	2138	1893	443	1905	1462	805	2439	1934	495	1734	1239	761	1498	737	305
Average	<b>300</b>	<b>2213</b>	<b>1913</b>	<b>468</b>	<b>1901</b>	<b>1433</b>	<b>520</b>	<b>2072</b>	<b>1552</b>	<b>491</b>	<b>1761</b>	<b>1270</b>	<b>734</b>	<b>1496</b>	<b>695</b>	<b>336</b>
2.1	314	2117	1803	485	2244	1759	507	1787	1280	528	1867	1339	727	1336	609	311
2.2	319	2285	1966	499	1811	1312	521	1706	1185	511	1988	1477	794	1357	563	365
2.3	269	2032	1763	479	1841	1362	490	1722	1232	511	1628	1117	688	1395	707	288
Average	<b>300</b>	<b>2144</b>	<b>1844</b>	<b>487</b>	<b>1968</b>	<b>1478</b>	<b>506</b>	<b>1738</b>	<b>1232</b>	<b>516</b>	<b>1827</b>	<b>1311</b>	<b>736</b>	<b>1362</b>	<b>626</b>	<b>321</b>
3.1	301	2467	2166	480	1890	1410	619	1960	1341	-	-	-	684	1307	623	297
3.2	311	1875	1564	475	1803	1328	501	1836	1335	-	-	-	619	1244	625	311
3.3	307	2044	1737	455	1817	1362	530	1721	1191	-	-	-	606	1389	783	314
Average	<b>306</b>	<b>2128</b>	<b>1822</b>	<b>470</b>	<b>1836</b>	<b>1366</b>	<b>550</b>	<b>1839</b>	<b>1289</b>				<b>636</b>	<b>1313</b>	<b>677</b>	<b>307</b>
4.1	308	2183	1875	465	1581	1116	571	1714	1143	-	-	-	785	1346	661	313
4.2	315	2137	1822	483	1525	1042	534	1646	1112	-	-	-	725	1329	604	285
4.3	278	2202	1924	488	1697	1209	546	1723	1177	-	-	-	789	1353	564	309
Average	<b>300</b>	<b>2174</b>	<b>1874</b>	<b>478</b>	<b>1601</b>	<b>1123</b>	<b>550</b>	<b>1694</b>	<b>1144</b>				<b>766</b>	<b>1342</b>	<b>576</b>	<b>302</b>
5.1	284	2203	2019	522	2319	1797	592	2230	1738	561	2236	1675	886	1490	604	342
5.2	269	2151	1882	533	2251	1718	609	2369	1760	523	2148	1625	889	1426	537	289
5.3	274	2170	1896	571	2375	1804	574	2540	1966	545	2061	1516	835	1490	655	303
Average	<b>275</b>	<b>2174</b>	<b>1899</b>	<b>542</b>	<b>2315</b>	<b>1773</b>	<b>591</b>	<b>2379</b>	<b>1788</b>	<b>543</b>	<b>2148</b>	<b>1605</b>	<b>870</b>	<b>1468</b>	<b>598</b>	<b>311</b>
6.1	360	2295	1935	548	2184	1636	605	2259	1654	631	2170	1539	826	1687	861	347
6.2	366	2361	1995	558	2145	1587	620	2272	1652	582	2251	1669	769	1172	403	357
6.3	340	2254	1914	588	2164	1576	530	2092	1562	570	2262	1692	891	1694	803	340
Average	<b>355</b>	<b>2303</b>	<b>1948</b>	<b>564</b>	<b>2164</b>	<b>1600</b>	<b>585</b>	<b>2207</b>	<b>1622</b>	<b>594</b>	<b>2227</b>	<b>1633</b>	<b>829</b>	<b>1517</b>	<b>688</b>	<b>348</b>
7.1	291	2514	2223	495	2176	1681	587	2289	1702	586	2316	1730	891	1754	863	394
7.2	371	2274	1903	462	2232	1770	568	2240	1672	554	2239	1685	877	1667	790	353
7.3	398	2221	1833	491	2149	1658	538	2315	1777	433	1887	1454	878	1648	770	350
Average	<b>350</b>	<b>2303</b>	<b>1986</b>	<b>482</b>	<b>2185</b>	<b>1703</b>	<b>564</b>	<b>2281</b>	<b>1717</b>	<b>524</b>	<b>2147</b>	<b>1623</b>	<b>882</b>	<b>1689</b>	<b>807</b>	<b>365</b>
8.1	384	2505	2121	498	2594	2096	562	2214	1652	456	2393	1937	849	1730	881	351
8.2	390	2688	2298	466	2344	1878	505	2267	1762	511	2355	1844	855	1646	791	449
8.3	313	2392	2079	488	2439	1951	519	2404	1885	509	2123	1614	847	1806	959	393
Average	<b>362</b>	<b>2528</b>	<b>2166</b>	<b>484</b>	<b>2459</b>	<b>1975</b>	<b>558</b>	<b>2306</b>	<b>1748</b>	<b>492</b>	<b>2290</b>	<b>1798</b>	<b>850</b>	<b>1727</b>	<b>877</b>	<b>397</b>
9.1	348	2626	2278	526	2518	1992	424	2445	2021	543	2257	1714	847	1586	739	389
9.2	358	2545	2187	494	2299	1805	403	2940	2537	543	2202	1659	824	1522	698	343
9.3	341	2672	2331	521	2631	2110	391	2047	1656	531	2238	1707	836	1657	821	387
Average	<b>349</b>	<b>2614</b>	<b>2265</b>	<b>513</b>	<b>2482</b>	<b>1969</b>	<b>406</b>	<b>2477</b>	<b>2071</b>	<b>539</b>	<b>2232</b>	<b>1693</b>	<b>835</b>	<b>1588</b>	<b>753</b>	<b>373</b>

**The formant values of three tokens of eight Ewe oral Vowels as produced by Kpando speakers**

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1
1.1	282	2022	1740	405	2063	1663	554	1832	1278	498	1499	1001	799	1249	450	337
1.2	373	2151	1778	349	2096	1747	546	1810	1264	369	1775	1406	845	1281	436	321
1.3	271	2094	1823	427	2020	1593	474	1682	1209	388	1780	1392	845	1203	358	384
Average	<b>308</b>	<b>2089</b>	<b>1781</b>	<b>393</b>	<b>2059</b>	<b>1666</b>	<b>524</b>	<b>1774</b>	<b>1250</b>	<b>418</b>	<b>1684</b>	<b>1266</b>	<b>829</b>	<b>1244</b>	<b>415</b>	<b>347</b>
2.1	239	2004	1765	464	2015	1551	496	1886	1390	431	1847	1416	680	1307	627	290
2.2	262	2240	1978	385	2032	1630	533	1894	1361	371	1762	1391	693	1479	776	371
2.3	355	2157	1802	384	2083	1699	496	1803	1307	362	1786	1424	663	1466	803	255
Average	<b>288</b>	<b>2133</b>	<b>1845</b>	<b>411</b>	<b>2043</b>	<b>1632</b>	<b>508</b>	<b>1861</b>	<b>1353</b>	<b>388</b>	<b>1798</b>	<b>1410</b>	<b>678</b>	<b>1415</b>	<b>737</b>	<b>305</b>
3.1	285	2082	1797	344	2006	1662	516	1865	1349	403	1639	1260	674	1303	629	365
3.2	271	1532	1261	317	2058	1741	476	2017	1541	335	1790	1455	683	1238	555	240
3.3	281	1812	1531	285	1989	1704	489	1924	1435	356	1723	1367	714	1284	570	301
Average	<b>279</b>	<b>1808</b>	<b>1529</b>	<b>315</b>	<b>2017</b>	<b>1702</b>	<b>493</b>	<b>1935</b>	<b>1442</b>	<b>364</b>	<b>1717</b>	<b>1353</b>	<b>690</b>	<b>1275</b>	<b>585</b>	<b>302</b>
4.1	268	1974	1706	383	1876	1521	518	1935	1417	378	1550	1172	538	934	396	391
4.2	315	1814	1499	374	1881	1507	585	1658	1173	399	1816	1417	706	1227	521	278
4.3	327	1974	1647	478	1767	1289	501	1753	1252	438	1804	1566	796	1192	386	283
Average	<b>303</b>	<b>1920</b>	<b>1617</b>	<b>411</b>	<b>1841</b>	<b>1430</b>	<b>534</b>	<b>1782</b>	<b>1248</b>	<b>405</b>	<b>1723</b>	<b>1378</b>	<b>751</b>	<b>1209</b>	<b>458</b>	<b>317</b>
5.1	229	2370	2041	407	2395	1888	559	2222	1665	-	-	-	873	1612	739	296
5.2	225	2420	2195	420	2090	1670	580	2268	1688	-	-	-	839	1542	703	319
5.3	253	2325	2072	406	2253	1847	568	2177	1609	-	-	-	858	1563	705	340
Average	<b>235</b>	<b>2371</b>	<b>2136</b>	<b>411</b>	<b>2237</b>	<b>1826</b>	<b>569</b>	<b>2222</b>	<b>1653</b>				<b>856</b>	<b>1572</b>	<b>716</b>	<b>318</b>
6.1	336	2573	2237	428	2579	2151	597	2236	1639	439	2247	1808	845	1618	773	385
6.2	298	2533	2235	434	2318	1884	620	2240	1620	465	2286	1821	883	1613	730	392
6.3	333	2557	2224	440	2363	1923	598	2244	1646	453	2208	1755	838	1477	639	355
Average	<b>322</b>	<b>2544</b>	<b>2222</b>	<b>434</b>	<b>2420</b>	<b>1986</b>	<b>605</b>	<b>2240</b>	<b>1635</b>	<b>452</b>	<b>2247</b>	<b>1795</b>	<b>855</b>	<b>1569</b>	<b>714</b>	<b>377</b>
7.1	387	2749	2362	440	2450	2010	574	2371	1797	503	2203	1700	730	1532	802	365
7.2	355	2611	2256	478	2477	1999	666	2117	1451	474	2082	1608	833	1800	967	377
7.3	367	2795	2428	488	2303	1815	599	2443	1844	525	2257	1732	632	1427	895	450
Average	<b>369</b>	<b>2718</b>	<b>2349</b>	<b>468</b>	<b>2410</b>	<b>1942</b>	<b>613</b>	<b>2310</b>	<b>1697</b>	<b>500</b>	<b>2180</b>	<b>1680</b>	<b>731</b>	<b>1586</b>	<b>855</b>	<b>397</b>
8.1	285	2532	2247	493	2374	1881	503	2265	1762	511	2160	1649	890	1285	390	357
8.2	305	2525	2220	485	2419	1934	513	2458	1945	463	2127	1664	809	1663	854	414
8.3	286	2413	2127	489	2555	2066	523	2302	1779	446	2180	1734	690	1155	465	379
Average	<b>291</b>	<b>2490</b>	<b>2199</b>	<b>487</b>	<b>2449</b>	<b>1962</b>	<b>513</b>	<b>2341</b>	<b>1828</b>	<b>473</b>	<b>2155</b>	<b>1682</b>	<b>796</b>	<b>1368</b>	<b>572</b>	<b>383</b>

**The formant values of three tokens of eight Ewe oral Vowels as produced by Tɔŋu speakers**

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
1.1	269	1829	1560	496	2005	1509	428	1794	1372	421	1396	975	723	1132	409	343
1.2	249	2693	2444	496	2063	1567	462	2414	1952	475	1421	946	732	1190	458	356
1.3	303	2789	2486	490	2300	1810	454	1931	1477	493	1728	1235	706	1171	465	375
Average	<b>273.67</b>	<b>2437</b>	<b>2164</b>	<b>494</b>	<b>2122.67</b>	<b>1628</b>	<b>448</b>	<b>2045</b>	<b>1597</b>	<b>463</b>	<b>1515</b>	<b>1052</b>	<b>720.34</b>	<b>1164.34</b>	<b>444</b>	<b>358</b>
2.1	362	2121	1759	485	2534	2049	503	1845	1342	507	1510	1003	737	1431	694	365
2.2	354	2112	1758	491	1696	1205	512	1769	1257	484	1482	998	733	1462	729	319
2.3	337	2200	1863	453	1869	1416	528	1773	1245	535	1719	1184	674	1472	798	327
Average	<b>351</b>	<b>2144.34</b>	<b>1793</b>	<b>476.34</b>	<b>2033</b>	<b>1557</b>	<b>514.34</b>	<b>1795.67</b>	<b>1281.33</b>	<b>508.67</b>	<b>1570.34</b>	<b>1062</b>	<b>735</b>	<b>1446.5</b>	<b>711.5</b>	<b>337</b>
3.1	267	2184	1917	566	1650	1084	541	2079	1538	568	1772	1204	791	1461	670	364
3.2	377	2234	1857	509	1851	1342	587	2024	1437	593	1511	918	760	1398	638	346
3.3	302	2088	1786	539	1581	1042	577	2061	1484	549	1615	1066	819	1379	560	334
Average	<b>315.34</b>	<b>2168.67</b>	<b>1853.4</b>	<b>537</b>	<b>1694</b>	<b>1157</b>	<b>568.34</b>	<b>2066.67</b>	<b>1498.34</b>	<b>570</b>	<b>1632</b>	<b>1042</b>	<b>790</b>	<b>1412</b>	<b>622</b>	<b>364.6</b>
4.1	296	2309	2013	562	1887	1325	543	1931	1388	496	1569	1073	786	1348	562	322
4.2	295	2982	2687	540	1856	1316	547	2184	1637	479	1719	1240	718	1415	697	389
4.3	321	2518	2257	537	1640	1104	513	2364	1851	475	1725	1250	890	1458	568	329
Average	<b>304</b>	<b>2620</b>	<b>2316</b>	<b>538.5</b>	<b>1787</b>	<b>1249</b>	<b>533</b>	<b>2161</b>	<b>1626</b>	<b>484</b>	<b>1672</b>	<b>1188</b>	<b>798</b>	<b>1407</b>	<b>609</b>	<b>347</b>
5.1	264	1865	1601	464	1877	1413	483	1824	1341	465	1738	1273	795	1375	580	388
5.2	296	1979	1683	439	1933	1494	485	1843	1358	474	1881	1407	715	1393	678	326
5.3	356	1969	1613	456	1852	1396	485	1820	1335	457	1641	1184	704	1391	687	330
Average	<b>305</b>	<b>1926</b>	<b>1632</b>	<b>253</b>	<b>1884</b>	<b>1434</b>	<b>484.4</b>	<b>1853</b>	<b>1344</b>	<b>459.7</b>	<b>1729</b>	<b>1288</b>	<b>738</b>	<b>186</b>	<b>648</b>	<b>376.7</b>
6.1	336	2706	2370	576	2336	1760	541	2461	1920	668	1827	1159	916	1806	890	395
6.2	334	2667	2333	589	2284	1695	544	2301	1757	571	2006	1435	781	1106	325	375
6.3	294	2640	2346	550	2221	1671	532	2427	1895	634	1732	1098	802	1767	965	396
Average	<b>321.34</b>	<b>2704</b>	<b>2349</b>	<b>571</b>	<b>2279</b>	<b>1708</b>	<b>539</b>	<b>2396</b>	<b>1857</b>	<b>624.4</b>	<b>1854</b>	<b>1230</b>	<b>833</b>	<b>1559</b>	<b>726</b>	<b>388</b>
7.1	312	2209	1897	543	2126	1583	615	2047	1432	509	1264	755	884	1609	725	399
7.2	352	2369	2017	535	1980	1445	636	2149	1513	555	1553	998	835	1343	508	394
7.3	347	2199	1852	532	2115	1583	625	2011	1386	536	1623	1087	834	1030	196	310
Average	<b>337</b>	<b>2259</b>	<b>1922</b>	<b>536</b>	<b>2073</b>	<b>1537</b>	<b>625</b>	<b>2069</b>	<b>1443</b>	<b>533</b>	<b>1480</b>	<b>946</b>	<b>851</b>	<b>1327</b>	<b>476</b>	<b>367</b>
8.1	294	2290	1996	477	1423	946	544	2260	1716	509	1933	1424	766	1630	864	390
8.2	288	2211	1923	550	1995	1445	557	2266	1709	477	1423	946	771	1614	843	354
8.3	287	2040	1753	536	1752	1216	539	2180	1641	469	1513	1044	792	1699	907	392
Average	<b>289</b>	<b>2180</b>	<b>1890</b>	<b>521</b>	<b>1723</b>	<b>1202</b>	<b>546</b>	<b>2235</b>	<b>1688</b>	<b>485</b>	<b>1623</b>	<b>1138</b>	<b>776</b>	<b>1647</b>	<b>871</b>	<b>378</b>

Speakers/ Tokens/ Averages	i			e			ɛ			ə			a			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
9.1	416	2381	1965	511	1608	1097	565	2215	1650	631	1939	1308	911	1601	690	366
9.2	363	2445	2082	636	1981	1345	547	2225	1678	590	1888	1298	852	1662	810	375
9.3	376	2441	2065	583	1878	1295	518	2194	1676	616	1835	1219	843	1695	852	334
Average	<b>385</b>	<b>2422</b>	<b>2037</b>	<b>576</b>	<b>1832</b>	<b>1245</b>	<b>543</b>	<b>2211</b>	<b>1668</b>	<b>612</b>	<b>1887</b>	<b>1275</b>	<b>868</b>	<b>1652</b>	<b>784</b>	<b>358</b>
10.1	276	2101	1825	474	1620	1120	456	2273	1817	511	1712	1201	829	1416	587	368
10.2	310	2995	2685	486	1791	1305	453	2204	1751	610	1587	977	840	1643	803	352
10.3	288	2362	2074	530	1835	1305	511	1746	1235	568	1689	1121	890	1617	727	358
Average	<b>291</b>	<b>2486</b>	<b>2194</b>	<b>496</b>	<b>1748</b>	<b>1243</b>	<b>473</b>	<b>2074</b>	<b>1601</b>	<b>563</b>	<b>1662</b>	<b>1099</b>	<b>853</b>	<b>1558</b>	<b>705</b>	<b>359</b>

**The formant values of three tokens of eight Ewe Nasal Vowels as produced by Anɔ speakers**

Speakers/ Tokens/ Averages	ĩ			ẽ			ĕ			õ			ã			ũ		
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>
1.1	352	2613	2261	391	2707	2316	508	2700	2192	444	2418	1974	878	1299	421	345	1332	987
1.2	346	2733	2387	365	2225	1860	454	2352	1898	401	2616	2215	723	1197	474	334	1358	1024
1.3	359	2913	2554	362	2621	2259	393	2525	2132	371	2656	2285	887	1372	485	311	1295	984
Average	<b>352</b>	<b>2753</b>	<b>2400</b>	<b>372</b>	<b>2517</b>	<b>2145</b>	<b>451</b>	<b>2525</b>	<b>2074</b>	<b>405</b>	<b>2563</b>	<b>2158</b>	<b>829</b>	<b>1289</b>	<b>460</b>	<b>330</b>	<b>1328</b>	<b>998</b>
2.1	302	2264	1962	565	2761	2196	606	2027	1421	640	1408	768	789	1362	573	324	1234	910
2.2	287	2349	2062	588	1780	1200	537	1978	1441	618	1333	715	715	1286	571	287	1163	876
2.3	236	2225	1989	527	2021	1494	584	1915	1331	570	1454	884	855	1279	424	353	1071	718
Average	<b>275</b>	<b>2279</b>	<b>2004</b>	<b>560</b>	<b>2187</b>	<b>1627</b>	<b>575</b>	<b>1973</b>	<b>1398</b>	<b>616</b>	<b>1398</b>	<b>782</b>	<b>786</b>	<b>1309</b>	<b>523</b>	<b>275</b>	<b>2279</b>	<b>2004</b>
3.1	366	2275	1909	461	1976	1515	539	1764	1225	487	1323	836	615	1243	628	378	944	566
3.2	359	2101	1742	496	1781	1285	523	1946	1423	442	1318	876	662	1243	581	349	847	498
3.3	328	2348	2020	488	1928	1440	469	1924	1455	496	1444	948	503	1164	661	331	867	536
Average	<b>351</b>	<b>2241</b>	<b>1890</b>	<b>501</b>	<b>1895</b>	<b>1414</b>	<b>510</b>	<b>1878</b>	<b>1368</b>	<b>475</b>	<b>1361</b>	<b>886</b>	<b>593</b>	<b>1216</b>	<b>623</b>	<b>352</b>	<b>886</b>	<b>534</b>
4.1	351	2034	1683	576	1479	903	545	1825	1280	546	1329	783	657	1354	697	263	1062	799
4.2	296	1939	1643	549	1548	999	588	1876	1288	574	1274	700	704	1319	615	376	657	281
4.3	353	2387	2034	580	1258	678	594	1921	1327	580	1251	671	679	1356	677	285	1172	887
Average	<b>333</b>	<b>2120</b>	<b>1787</b>	<b>568</b>	<b>1428</b>	<b>860</b>	<b>575</b>	<b>1874</b>	<b>1299</b>	<b>566</b>	<b>1284</b>	<b>718</b>	<b>680</b>	<b>1343</b>	<b>663</b>	<b>274</b>	<b>1117</b>	<b>843</b>
5.1	347	2072	1725	537	1569	1032	603	1784	1017	526	1188	662	615	1225	610	377	942	565
5.2	311	2006	1695	551	1555	1004	603	1198	1395	566	1559	993	632	1179	547	339	915	576
5.3	308	2055	1747	585	1600	1015	463	1933	1470	583	1704	1121	664	1270	606	345	848	503
Average	<b>322</b>	<b>2044</b>	<b>1722</b>	<b>557</b>	<b>1574</b>	<b>1017</b>	<b>556</b>	<b>1638</b>	<b>1082</b>	<b>558</b>	<b>1483</b>	<b>925</b>	<b>637</b>	<b>1224</b>	<b>587</b>	<b>353</b>	<b>901</b>	<b>548</b>
6.1	395	2054	1659	571	1498	927	575	1885	1310	532	1344	812	669	1283	614	392	960	568
6.2	267	1983	1716	576	1484	908	566	1791	1225	587	1551	964	678	1188	510	358	856	498
6.3				534	1488	954	547	1870	1323	528	1663	1135	693	1237	544	356	916	560
Average	<b>331</b>	<b>2018</b>	<b>1687</b>	<b>560</b>	<b>1490</b>	<b>930</b>	<b>562</b>	<b>1848</b>	<b>1286</b>	<b>549</b>	<b>1519</b>	<b>970</b>	<b>680</b>	<b>1236</b>	<b>556</b>	<b>368</b>	<b>910</b>	<b>542</b>
7.1	362	2467	2105	629	1540	891	634	2105	1471	627	2067	1440	807	1523	716	329	1228	899
7.2	354	2873	2519	616	2034	1418	628	2134	1506	667	2008	1341	828	1558	730	378	1149	771
7.3	364	2896	2532	585	1928	1343	674	2045	1371	694	2010	1316	837	1450	613	335	1090	755
Average	<b>360</b>	<b>2745</b>	<b>2385</b>	<b>610</b>	<b>1834</b>	<b>1224</b>	<b>645</b>	<b>2094</b>	<b>1449</b>	<b>662</b>	<b>2028</b>	<b>1366</b>	<b>824</b>	<b>1540</b>	<b>686</b>	<b>347</b>	<b>1155</b>	<b>808</b>
8.1	355	2844	2489	599	2100	1501	-	-	-	733	2146	1413	848	1275	427	244	905	661
8.2	346	2909	2563	692	2031	1339	-	-	-	724	2068	1344	905	1571	666	243	1324	1081
8.3	433	2813	2380	558	2042	1484	-	-	-	724	2087	1363	890	1434	544	-	-	-
Average	<b>378</b>	<b>2855</b>	<b>2477</b>	<b>616</b>	<b>2057</b>	<b>1441</b>	-	-	-	<b>727</b>	<b>2100</b>	<b>1373</b>	<b>881</b>	<b>1426</b>	<b>545</b>	<b>243</b>	<b>1114</b>	<b>871</b>

Speakers/ Tokens/ Averages	ĩ			ẽ			ĕ			õ			ã			ũ		
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>
9.1	313	2512	197	576	1629	1053	563	2296	1733	532	1475	943	615	1398	783	294	990	696
9.2	513	2630	178	573	1636	1063	603	2279	1676	512	1282	770	657	1525	868	373	1071	698
9.3	403	2419	178	412	2007	1595	571	2303	1732	485	1403	918	583	1244	661	282	1316	1034
Average	<b>410</b>	<b>2520</b>	<b>2110</b>	<b>520</b>	<b>1757</b>	<b>1237</b>	<b>579</b>	<b>2292</b>	<b>1713</b>	<b>509</b>	<b>1386</b>	<b>877</b>	<b>618</b>	<b>1389</b>	<b>771</b>	<b>316</b>	<b>1125</b>	<b>809</b>
10.1	301	2200	1772	271	1753	1282	428	2200	1772	439	1507	1068	777	1549	772	359	1257	898
10.2	286	1776	1490	489	1704	1215	426	2282	1856	536	1517	981	782	1489	707	333	1142	809
10.3	323	1843	1520	553	1873	1320	442	2272	1830	512	1390	878	767	1458	691	-	-	-
Average	<b>303</b>	<b>1851</b>	<b>1548</b>	<b>504</b>	<b>1776</b>	<b>1272</b>	<b>432</b>	<b>2251</b>	<b>1819</b>	<b>495</b>	<b>1471</b>	<b>976</b>	<b>775</b>	<b>1498</b>	<b>723</b>	<b>346</b>	<b>1199</b>	<b>853</b>

**The formant values of three tokens of eight Ewe Nasal Vowels as produced by Avenor speakers**

Speakers/ Tokens/ Averages	ĩ			ẽ			ẽ̃			õ			ã			ũ			
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1
1.1	443	2356	1913	502	1506	1004	553	1951	1398	547	1508	961	905	1550	598	404	1103	699	578
1.2	466	2035	2169	531	1568	1184	515	1990	1475	673	1528	885	930	1531	601	376	1138	762	532
1.3	441	2369	1921	550	1734	1184	535	2038	1503	569	1500	931	807	1521	714	355	1093	738	506
Average	<b>450</b>	<b>2253</b>	<b>1803</b>	<b>527</b>	<b>1602</b>	<b>1075</b>	<b>534</b>	<b>1993</b>	<b>1459</b>	<b>596</b>	<b>1512</b>	<b>916</b>	<b>880</b>	<b>1534</b>	<b>654</b>	<b>378</b>	<b>1111</b>	<b>733</b>	<b>538</b>
2.1	320	2009	1689	529	1623	1094	682	1932	1250	431	1852	1421	638	1315	677	399	1108	709	437
2.2	359	2124	1678	640	1635	995	554	1915	1361	487	1416	929	865	1335	470	325	817	492	363
2.3	340	2018	1678	563	1666	1103	514	1916	1402	577	1453	876	879	1487	608	460	960	500	345
Average	<b>339</b>	<b>2050</b>	<b>1711</b>	<b>577</b>	<b>1641</b>	<b>1064</b>	<b>583</b>	<b>1921</b>	<b>1338</b>	<b>498</b>	<b>1434</b>	<b>936</b>	<b>794</b>	<b>1379</b>	<b>585</b>	<b>394</b>	<b>961</b>	<b>567</b>	<b>381</b>
3.1	367	1998	1631	624	1469	845	594	1876	1282	658	1187	529	841	1244	403	367	816	449	344
3.2	348	1917	1569	647	1574	927	501	1859	1358	649	1249	600	885	1292	407	361	1465	1104	360
3.3	378	1929	1551	564	1577	1013	603	1789	1186	517	1220	703	841	1218	377	319	758	439	356
Average	<b>364</b>	<b>1948</b>	<b>1584</b>	<b>611</b>	<b>1540</b>	<b>929</b>	<b>566</b>	<b>1841</b>	<b>1275</b>	<b>608</b>	<b>1218</b>	<b>610</b>	<b>855</b>	<b>1251</b>	<b>396</b>	<b>349</b>	<b>1013</b>	<b>664</b>	<b>353</b>
4.1	375	2202	1877	618	1543	925	524	2006	1482	645	1291	646	712	1440	728	324	881	557	421
4.2	344	2321	1977	577	1466	889	580	1732	1152	588	1564	976	715	1415	700	366	941	576	484
4.3	372	2609	2237	620	1575	955	483	1952	1469	552	1563	1011	663	1339	676	382	1046	664	434
Average	<b>363</b>	<b>2377</b>	<b>2014</b>	<b>605</b>	<b>1528</b>	<b>923</b>	<b>529</b>	<b>1896</b>	<b>1367</b>	<b>595</b>	<b>1472</b>	<b>877</b>	<b>696</b>	<b>1398</b>	<b>702</b>	<b>357</b>	<b>956</b>	<b>599</b>	<b>446</b>
5.1	358	1873	1515	542	1587	1045	469	1765	1296	521	1332	811	732	1327	595	386	880	494	447
5.2	368	1858	1490	562	1942	1380	490	1881	1391	482	1381	899	860	1487	627	346	787	441	475
5.3	342	1856	1514	524	1819	1295	498	1787	1289	517	1333	816	794	1364	570	391	858	467	447
Average	<b>356</b>	<b>1862</b>	<b>1506</b>	<b>542</b>	<b>1782</b>	<b>1240</b>	<b>485</b>	<b>1811</b>	<b>1326</b>	<b>506</b>	<b>1348</b>	<b>842</b>	<b>795</b>	<b>1392</b>	<b>597</b>	<b>374</b>	<b>841</b>	<b>467</b>	<b>456</b>
6.1	363	2623	2260	578	1387	809	598	1666	1068	587	1437	850	758	1101	343	376	1420	1044	381
6.2	360	2696	2336	555	1312	857	595	1608	1013	641	1373	732	657	1181	524	430	888	458	384
6.3	366	2788	2422	507	1409	902	606	1573	967	582	1425	843	664	1109	445	408	926	518	424
Average	<b>363</b>	<b>2702</b>	<b>2339</b>	<b>546</b>	<b>1402</b>	<b>856</b>	<b>599</b>	<b>1615</b>	<b>1016</b>	<b>603</b>	<b>1411</b>	<b>808</b>	<b>693</b>	<b>1130</b>	<b>437</b>	<b>404</b>	<b>1078</b>	<b>674</b>	<b>396</b>
7.1	396	2616	2220	582	1421	839	784	2090	1306	805	1455	650	928	1562	634	435	716	281	506
7.2	424	2659	2235	605	1518	913	794	2142	1342	809	1397	588	891	1422	531	336	1297	961	590
7.3	394	2542	2148	660	1472	812	798	2156	1358	844	1471	627	889	1450	561	360	1026	703	493
Average	<b>404</b>	<b>2605</b>	<b>2201</b>	<b>615</b>	<b>1470</b>	<b>855</b>	<b>792</b>	<b>2129</b>	<b>1337</b>	<b>819</b>	<b>1441</b>	<b>622</b>	<b>902</b>	<b>1478</b>	<b>576</b>	<b>377</b>	<b>1024</b>	<b>647</b>	<b>530</b>

**The formant values of three tokens of eight Ewe Nasal Vowels as produced by Ho speakers**

Speakers/ Tokens/ Averages	ĩ			ẽ			ẽ̃			õ̃			ã			ũ		
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>
1.1	298	2173	1875	475	2879	2404	729	1802	1073	392	1943	1551	649	1342	643	351	1424	10
1.2	289	2434	2145	446	1986	1540	506	1720	1214	387	1724	1337	831	1351	520	309	1147	8
1.3	291	2485	2072	499	2088	1589	604	1807	1203	361	1987	1326	703	1276	573	339	1288	9
Average	<b>292</b>	<b>2364</b>	<b>2072</b>	<b>473</b>	<b>2301</b>	<b>1828</b>	<b>613</b>	<b>1776</b>	<b>1163</b>	<b>380</b>	<b>1884</b>	<b>1504</b>	<b>744</b>	<b>1323</b>	<b>579</b>	<b>333</b>	<b>1286</b>	<b>9</b>
2.1	382	1891	1509	553	1874	1321	674	1736	1062	607	1658	1051	834	1369	535	333	1128	7
2.2	355	2063	1708	529	1867	1338	569	1712	1143	654	1759	1105	778	1339	661	381	1346	9
2.3	405	2697	2292	547	1905	1348	605	1832	1227	617	1651	1034	833	1409	576	372	1200	8
Average	<b>380</b>	<b>2217</b>	<b>1837</b>	<b>543</b>	<b>1882</b>	<b>1339</b>	<b>616</b>	<b>1760</b>	<b>1144</b>	<b>626</b>	<b>1689</b>	<b>1063</b>	<b>815</b>	<b>1372</b>	<b>557</b>	<b>362</b>	<b>1224</b>	<b>8</b>
3.1	399	2292	1893	551	2144	1593	549	1813	1264	486	1764	1275	564	1284	720	375	979	6
3.2	313	2160	1847	432	1871	1439	505	1711	1206	485	1712	1227	638	1321	683	337	914	5
3.3	394	2306	1912	382	2199	1817	498	1675	1177	461	1862	1401						
Average	<b>368</b>	<b>2252</b>	<b>1884</b>	<b>455</b>	<b>2071</b>	<b>1616</b>	<b>517</b>	<b>1733</b>	<b>1216</b>	<b>477</b>	<b>1779</b>	<b>1302</b>	<b>601</b>	<b>1302</b>	<b>701</b>	<b>356</b>	<b>946</b>	<b>5</b>
4.1	356	2205	1849	484	1904	1420	666	1841	1175	696	1769	1073	789	1256	467	356	938	5
4.2	328	2335	2007	417	1924	1507	620	1777	1157	616	1893	1277	736	1285	549	258	779	5
4.3				446	1876	1430	627	1786	1159	613	1852	1239	729	1174	345	270	914	6
Average	<b>342</b>	<b>2270</b>		<b>449</b>	<b>1901</b>	<b>1452</b>	<b>637</b>	<b>1801</b>	<b>1164</b>	<b>641</b>	<b>1838</b>	<b>1197</b>	<b>751</b>	<b>1238</b>	<b>487</b>	<b>294</b>	<b>877</b>	<b>5</b>
5.1	394	2511	2117	493	2377	1884	614	2084	1470	602	2200	1598	882	1425	543			
5.2	374	2385	2011	421	2369	1948	608	2143	1535	558	2174	1616	842	1433	586	346	721	3
5.3	394	2525	2131	437	2415	1978	576	2174	1598	590	2268	1678	854	1473	619	346	869	5
Average	<b>387</b>	<b>2473</b>	<b>2086</b>	<b>450</b>	<b>2387</b>	<b>1937</b>	<b>599</b>	<b>2133</b>	<b>1534</b>	<b>583</b>	<b>2214</b>	<b>1631</b>	<b>859</b>	<b>1443</b>	<b>584</b>	<b>346</b>	<b>795</b>	<b>4</b>
6.1	361	2545	2164	521	2078	1557	668	2280	1612	672	2342	1670	865	1595	730	334	1150	8
6.2	383	2530	2147	574	2021	1447	652	2172	1520	693	2304	1611	843	1575	732	316	983	6
6.3	393	2492	2099	523	2113	1590	664	2075	1411	659	2365	1706	755	1514	759			
Average	<b>385</b>	<b>2522</b>	<b>2137</b>	<b>539</b>	<b>2070</b>	<b>1561</b>	<b>661</b>	<b>2175</b>	<b>1501</b>	<b>674</b>	<b>2337</b>	<b>1663</b>	<b>821</b>	<b>1561</b>	<b>740</b>	<b>325</b>	<b>1066</b>	<b>7</b>
7.1	284	1172	888	430	2732	2302	636	2172	1536	535	2195	1660	818	1553	735	352	1252	9
7.2	294	2324	2030	438	2633	2192	663	2160	1497	593	2218	1625	774	1493	719	395	1152	7
7.3	383	2511	2128	434	2615	2181	690	2213	1523	616	2255	1639	726	1373	647	388	958	5
Average	<b>338</b>	<b>2417</b>	<b>2079</b>	<b>434</b>	<b>2660</b>	<b>2317</b>	<b>665</b>	<b>2181</b>	<b>1516</b>	<b>581</b>	<b>2222</b>	<b>1641</b>	<b>772</b>	<b>1473</b>	<b>701</b>	<b>378</b>	<b>1120</b>	<b>7</b>
8.1	348	2745	2397	660	2605	1945	657	2487	1830	666	2725	2059	717	1318	601	278	1151	8
8.2	322	2700	2378	505	2523	2018	686	2676	1990	633	2742	2109	730	1329	599	375	1216	8
8.3	287	2695	2408	376	2380	2004	694	2506	1812	613	2591	1978	763	1370	607	355	1042	6
Average	<b>319</b>	<b>2713</b>	<b>2394</b>	<b>513</b>	<b>2502</b>	<b>1989</b>	<b>679</b>	<b>2556</b>	<b>1877</b>	<b>637</b>	<b>2686</b>	<b>2049</b>	<b>736</b>	<b>1339</b>	<b>603</b>	<b>336</b>	<b>1136</b>	<b>8</b>
9.1	220	1854	1634	577	2210	1633	589	2344	1755	545	2176	1631	760	1494	734	381	1099	71
9.2	295	2218	1923	591	2229	1638	593	2243	1650	540	2135	1595	757	1466	709	241	1052	81
9.3	433	2510	2077	613	2213	1600	549	2251	1702	516	2224	1706	730	1449	719	387	1124	73
Average	<b>316</b>	<b>2194</b>	<b>1878</b>	<b>593</b>	<b>2217</b>	<b>1624</b>	<b>577</b>	<b>2279</b>	<b>1702</b>	<b>533</b>	<b>2178</b>	<b>1645</b>	<b>749</b>	<b>1469</b>	<b>720</b>	<b>336</b>	<b>1091</b>	<b>75</b>

**The formant values of three tokens of eight Ewe Nasal Vowels as produced by Kpando speakers**

Speakers/ Tokens/ Averages	ĩ			ẽ			ē			ē̄			ã			F1
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
1.1	284	2157	1873	547	1776	1229	678	1858	1180	713	1794	1081	873	1317	444	501
1.2	282	2247	1985	474	1921	1447	660	1884	1224	701	1922	1221	813	1305	492	517
1.3	300	2136	1836	438	1745	1214	695	1947	1081	722	1881	1159	837	1327	490	382
Average				<b>486</b>	<b>1814</b>	<b>1328</b>	<b>677</b>	<b>1896</b>	<b>1219</b>	<b>712</b>	<b>1865</b>	<b>1153</b>	<b>841</b>	<b>1316</b>	<b>475</b>	<b>466</b>
2.1	335	2092	1758	442	1923	1481	562	1678	1116	529	1643	1114	630	1302	672	375
2.2	351	2130	1789	351	1803	1452	522	1597	1075	523	1631	1108	707	1392	685	327
2.3	375	2211	1836	431	2006	1575	562	1657	1095	557	1696	1139	607	1362	755	309
Average	<b>353</b>	<b>2144</b>	<b>1791</b>	<b>408</b>	<b>1910</b>	<b>1502</b>	<b>548</b>	<b>1644</b>	<b>1096</b>	<b>536</b>	<b>1656</b>	<b>1120</b>	<b>648</b>	<b>1352</b>	<b>704</b>	<b>337</b>
3.1	293	2058	1865	446	927	481	632	1847	1215	524	1733	1211	765	1297	532	311
3.2	304	2093	1789	486	989	503	638	1919	1281	361	1723	1362	747	1334	587	273
3.3	323	2086	1763	570	940	370	613	1895	1282	477	1460	883	664	1293	629	268
Average	<b>306</b>	<b>2079</b>	<b>1773</b>	<b>500</b>	<b>952</b>	<b>452</b>	<b>627</b>	<b>1887</b>	<b>1260</b>	<b>454</b>	<b>1638</b>	<b>1184</b>	<b>725</b>	<b>1308</b>	<b>583</b>	<b>284</b>
4.1	364	2095	1731	450	1973	1523	586	1641	1055	542	1856	1314	621	1212	600	397
4.2	328	2077	1749	432	1942	1510	524	1774	1250	508	1812	1304	658	1327	669	406
4.3	339	2456	2118	393	1975	1582	531	1709	1178	612	1934	1322	609	1272	663	403
Average	<b>343</b>	<b>2209</b>	<b>1866</b>	<b>425</b>	<b>1963</b>	<b>1538</b>	<b>547</b>	<b>1708</b>	<b>1161</b>	<b>554</b>	<b>1867</b>	<b>1313</b>	<b>629</b>	<b>1270</b>	<b>641</b>	<b>402</b>
5.1	351	2502	2151	363	2146	1783	672	2339	1667	627	2256	1529	831	1321	490	295
5.2	346	2567	2121	442	2267	1825	689	2184	1595	600	2125	1525	872	1371	499	279
5.3	344	2548	2204	446	2136	1690	654	2323	1669	618	2211	1593	874	1355	481	286
Average	<b>347</b>	<b>2539</b>	<b>2158</b>	<b>417</b>	<b>2183</b>	<b>1766</b>	<b>671</b>	<b>2282</b>	<b>1611</b>	<b>615</b>	<b>2197</b>	<b>1582</b>	<b>859</b>	<b>1349</b>	<b>490</b>	<b>286</b>
6.1	322	2728	2406	579	2239	1521	664	2376	1712	592	2083	1481	864	1396	532	519
6.2	779	2669	2390	579	2239	1660	554	2063	1509	615	1981	1366	706	1413	707	303
6.3	344	2538	2194	543	2186	1643	656	2228	1572	598	2094	1496	631	1329	698	338
Average	<b>315</b>	<b>2645</b>	<b>2330</b>	<b>557</b>	<b>2198</b>	<b>1641</b>	<b>624</b>	<b>2222</b>	<b>1598</b>	<b>601</b>	<b>2052</b>	<b>1451</b>	<b>733</b>	<b>1379</b>		<b>386</b>
7.1	277	2494	2217	538	2299	1761	667	2309	1640	687	2110	1423	810	1612	802	255
7.2	299	2363	2064	566	2302	1736	735	2414	1679	666	1256	590	716	1642	926	279
7.3	335	2305	1970	-	-	-	668	2244	1556	620	2317	1697	767	1453	686	278
Average	<b>303</b>	<b>2387</b>	<b>2084</b>	<b>552</b>	<b>2300</b>	<b>1748</b>	<b>697</b>	<b>2322</b>	<b>1625</b>	<b>657</b>	<b>1894</b>	<b>1237</b>	<b>764</b>	<b>1569</b>	<b>805</b>	<b>270</b>
8.1	243	2716	2473	420	2415	1995	634	2172	1538	492	2490	1998	641	1340	699	267
8.2	345	2563	2118	438	2390	1952	660	2193	1533	402	2419	2017	673	1493	820	332
8.3	334	2626	2292	402	2485	2083	630	2203	1473	484	2560	2076	611	1385	774	289
Average	<b>307</b>	<b>2635</b>	<b>2328</b>	<b>420</b>	<b>2430</b>	<b>2010</b>	<b>625</b>	<b>2140</b>	<b>1515</b>	459	2489	2030	<b>642</b>	<b>1406</b>	<b>764</b>	<b>296</b>



**The formant values of three tokens of eight Ewe Nasal Vowels as produced by Tɔŋu speakers**

Speakers/ Tokens/ Averages	ĩ			ẽ			ɛ̃			ə̃			ã			
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
1.1	384	2673	2289	426	2722	2296	623	2444	1821	482	2539	2057	690	1626	936	359
1.2	365	2513	2148	407	2551	2144	654	2341	1687	467	2020	1553	614	1546	932	392
1.3	378	2744	2366	435	2590	2155	614	2652	2652	442	2534	2092	512	1602	1090	368
Average	<b>375</b>	<b>2643</b>	<b>2268</b>	<b>422</b>	<b>2621</b>	<b>2199</b>	<b>630</b>	<b>2479</b>	<b>1849</b>	<b>463</b>	<b>2364</b>	<b>1901</b>	605	1591	986	<b>373</b>
2.1	390	2095	1705	436	1713	1277	512	1884	1372	564	1806	1242	761	1312	551	311
2.2	383	2022	1619	491	1768	1277	523	1934	1411	510	1751	1241	724	1343	619	310
2.3	370	2326	1956	464	1743	1279	568	1820	1252	503	1786	1283	776	1347	571	
Average	<b>381</b>	<b>2141</b>	<b>1760</b>	<b>463</b>	<b>1738</b>	<b>1275</b>	<b>534</b>	<b>1879</b>	<b>1345</b>	<b>525</b>	<b>1781</b>	<b>1256</b>	<b>753</b>	<b>1334</b>	<b>581</b>	<b>310</b>
3.1	363	1445	1082	649	1607	958	664	2015	1351	586	1948	1362	795	1269	474	383
3.2	388	1346	958	544	1891	1347	652	2031	1379	443	2056	1613	670	1402	732	334
3.3	394	1159	765	576	1832	1256	651	1994	1343	565	1700	1135	672	1335	663	389
Average	<b>381</b>	<b>1316</b>	<b>935</b>	<b>560</b>	<b>1861</b>	<b>1301</b>	<b>655</b>	<b>2013</b>	<b>1358</b>	<b>575</b>	<b>1824</b>	<b>1248</b>	<b>671</b>	<b>1335</b>	<b>623</b>	<b>368</b>
4.1	293	2323	2030	648	1848	1200	634	2457	1823	661	2149	1488	740	1457	717	353
4.2	304	2395	2091	654	1807	1153	640	1838	1198	675	2054	1379	737	1388	651	323
4.3	331	2362	2031	627	1856	1229	606	1894	1288	634	2041	1407	726	1377	651	384
Average	<b>309</b>	<b>2360</b>	<b>2051</b>	<b>643</b>	<b>1837</b>	<b>1194</b>	<b>626</b>	<b>2053</b>	<b>1427</b>	<b>656</b>	<b>2081</b>	<b>1425</b>	<b>734</b>	<b>1407</b>	<b>673</b>	<b>353</b>
5.1	397	2494	2097	505	2244	1739	683	2052	1369	670	2319	1649	675	1287	612	338
5.2	368	2564	2196	447	2608	2161	608	2117	1509	631	2318	1687	845	1505	660	359
5.3	293	2700	2407	390	2457	2067				633	2225	1592	790	1321	531	287
Average	<b>352</b>	<b>2586</b>	<b>2234</b>	<b>448</b>	<b>2436</b>	<b>1989</b>	<b>645</b>	<b>2084</b>	<b>1439</b>	<b>644</b>	<b>2287</b>	<b>1643</b>	<b>770</b>	<b>1371</b>	<b>601</b>	<b>328</b>
6.1	376	2005	1629	516	1787	1271	582	1852	1270	540	1941	1401	689	1340	651	402
6.2	347	2066	1719	518	1813	1295	556	1679	1123	539	1827	1288	670	1358	688	423
6.3	412	2109	1697	530	2005	1475	551	1944	1393	498	1818	1320	673	1342	669	310
Average	<b>378</b>	<b>2060</b>	<b>1682</b>	<b>521</b>	<b>1868</b>	<b>1347</b>	<b>563</b>	<b>1825</b>	<b>1262</b>	<b>522</b>		<b>1336</b>	<b>677</b>	<b>1346</b>	<b>669</b>	<b>378</b>
7.1	410	2835	2425	662	2252	1590	703	2680	1947	681	2597	1916	727	1730	1003	426
7.2	394	2514	2120	687	2332	1645	709	2576	1858	686	2567	1881				484
7.3				687	2372	1685	784	2561	1777				741	1794	1053	338
Average	<b>402</b>	<b>2674</b>	<b>2272</b>	<b>678</b>	<b>2318</b>	<b>1640</b>	<b>732</b>	<b>2592</b>	<b>1860</b>	<b>683</b>	<b>2582</b>	<b>1299</b>	<b>734</b>	<b>1762</b>	<b>1028</b>	<b>411</b>
8.1	355	2377	2022	441	2675	2234	695	2178	1483	-	-	-	869	1436	567	357
8.2	359	2588	2229	551	1622	1271	686	2086	1400	-	-	-	831	1527	696	378
8.3	319	2563	2244	482	1861	1379	695	2180	1485	-	-	-	897	1533	636	382
Average	<b>344</b>	<b>2509</b>	<b>2165</b>	<b>491</b>	<b>2119</b>	<b>1628</b>	<b>692</b>	<b>2148</b>	<b>1456</b>	-	-	-	<b>865</b>	<b>1498</b>	<b>633</b>	<b>372</b>
9.1	384	2684	2300	592	1753	1161	643	1591	948	551	2125	1574	749	1597	848	472
9.2	421	2638	2217	633	1800	1167	607	2098	1491	551	2183	1632	702	1493	791	447
9.3	417	2598	2181	631	1800	1169	631	2260	1629	588	2162	1574	730	1657	927	
Average	<b>407</b>	<b>2640</b>	<b>2233</b>	<b>618</b>	<b>1784</b>	<b>1165</b>	<b>627</b>	<b>1983</b>	<b>1356</b>	<b>563</b>	<b>2156</b>	<b>1593</b>	<b>727</b>	<b>1582</b>	<b>855</b>	<b>459</b>
Speakers/ Tokens/ Averages	ĩ			ẽ			ɛ̃			ə̃			ã			
	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	F1	F2	F2 <sup>1</sup>	
10.1	456	2961	2505	557	2269	1712	682	2329	1647	655	2366	1711	886	1396	510	366
10.2	461	1448		554	2208	1654	676	2417	1741	671	2305	1634	798	1571	773	384
10.3	466	2928	2462	546	2223	1677	607	2333	1726	642	2382	1740	717	1546	829	401
Average	<b>461</b>	<b>2445</b>	<b>1984</b>	<b>552</b>	<b>2233</b>	<b>1681</b>	<b>655</b>	<b>2359</b>	<b>1704</b>	<b>656</b>	<b>2351</b>	<b>1695</b>	<b>800</b>	<b>1504</b>	<b>704</b>	<b>383</b>