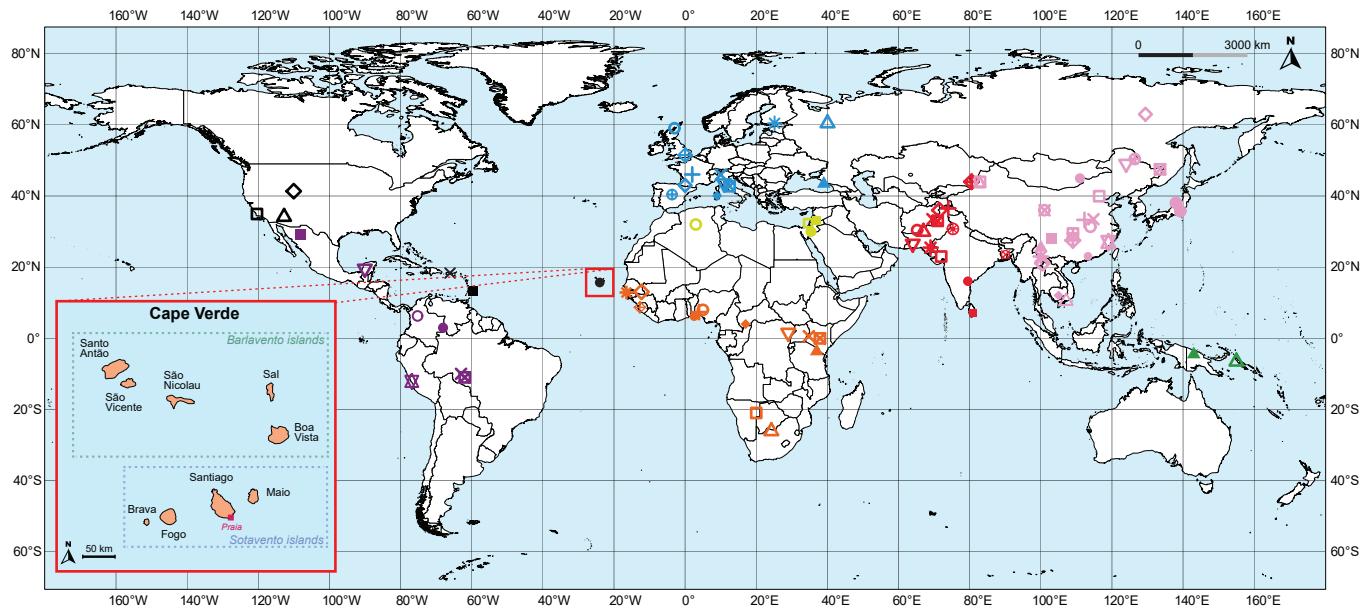


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**Supplemental Information**

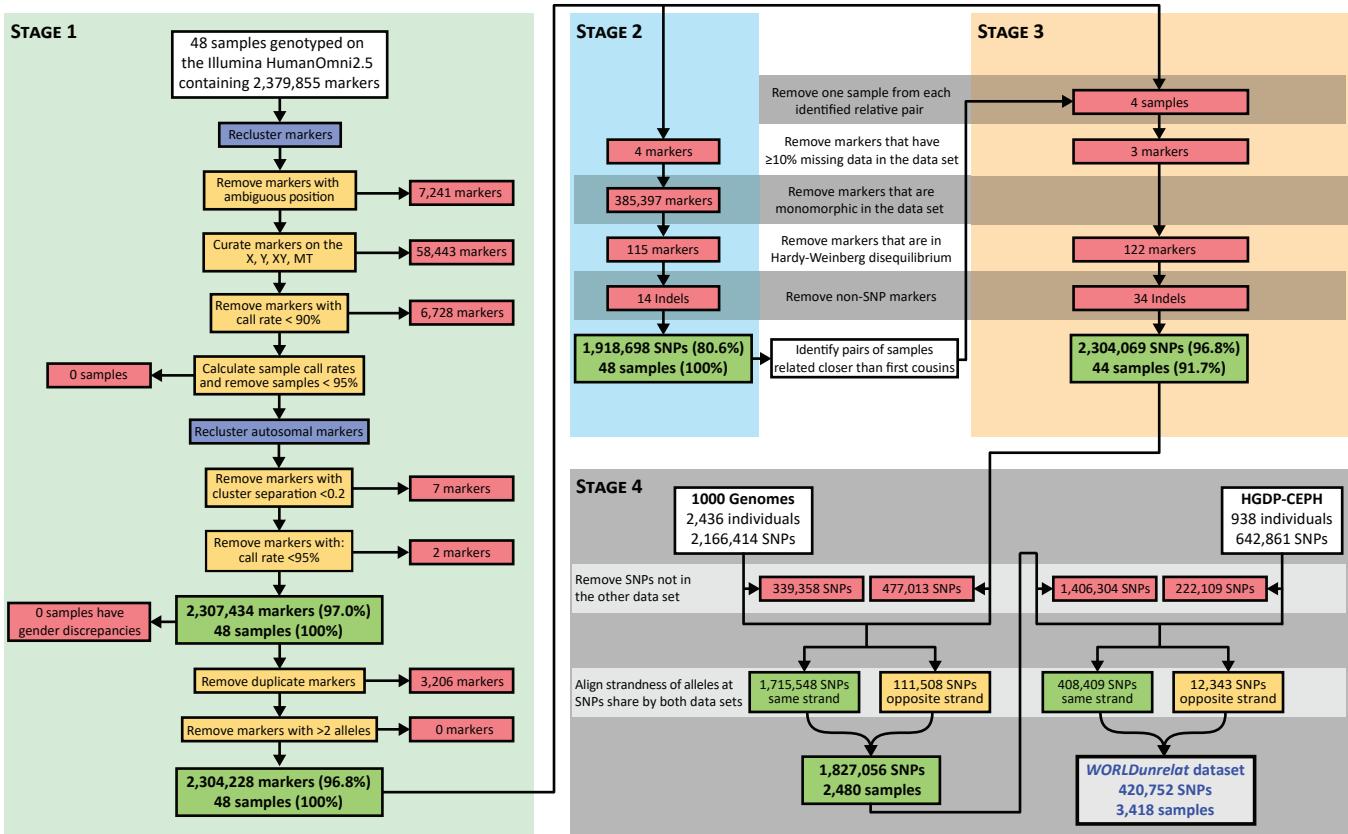
**Parallel Trajectories  
of Genetic and Linguistic Admixture  
in a Genetically Admixed Creole Population**

**Paul Verdu, Ethan M. Jewett, Trevor J. Pemberton, Noah A. Rosenberg, and Marlyse  
Baptista**



<b>AFRICA</b>	<b>MIDDLE EAST</b>	<b>EUROPE</b>	<b>CENTRAL-SOUTH ASIA</b>	<b>EAST ASIA</b>	<b>OCEANIA</b>	<b>CENTRAL AND SOUTH AMERICA</b>
<span style="color: orange;">▣</span> Maasai (MKK) <span style="color: orange;">×</span> Luhya (LWK) <span style="color: orange;">▽</span> Mbuti <span style="color: orange;">▲</span> Bantu (Kenya) <span style="color: orange;">◆</span> Biaka <span style="color: orange;">○</span> Yoruba <span style="color: orange;">+</span> Yoruba (YRI) <span style="color: orange;">□</span> San <span style="color: orange;">△</span> Bantu (S. Africa) <span style="color: orange;">◇</span> Mandenka <span style="color: orange;">*</span> Gambian (GWD) <span style="color: orange;">◊</span> Mende (MSL) <span style="color: orange;">●</span> Esan (ESN)	<span style="color: yellow;">■</span> Bedouin <span style="color: green;">●</span> Druze <span style="color: yellow;">□</span> Palestinian <span style="color: yellow;">○</span> Mozabite	<span style="color: blue;">▲</span> Adygei <span style="color: blue;">▣</span> Toscani (TSI) <span style="color: cyan;">▽</span> Tuscan <span style="color: blue;">×</span> Italian <span style="color: blue;">◆</span> Sardinian <span style="color: blue;">+</span> French <span style="color: cyan;">○</span> Basque <span style="color: blue;">△</span> Russian <span style="color: cyan;">○</span> Orcadian <span style="color: blue;">⊕</span> Iberian (IBS) <span style="color: cyan;">*</span> Finnish (FIN) <span style="color: blue;">◊</span> British (GBR)	<span style="color: red;">▼</span> Makrani <span style="color: orange;">○</span> Balochi <span style="color: red;">△</span> Brahui <span style="color: red;">×</span> Hazara <span style="color: red;">▣</span> Pathan <span style="color: red;">*</span> Sindhi <span style="color: red;">◊</span> Kalash <span style="color: red;">+</span> Burusho <span style="color: red;">□</span> Gujarati (GIH) <span style="color: red;">◊</span> Uygur <span style="color: red;">●</span> Telugu (ITU) <span style="color: red;">●</span> Penjabi (PGL) <span style="color: red;">■</span> Tamil (SLU) <span style="color: red;">▣</span> Bengali (BEB)	<span style="color: pink;">+</span> Han <span style="color: pink;">▣</span> Xibo <span style="color: pink;">⊗</span> Tu <span style="color: pink;">▲</span> Naxi <span style="color: pink;">*</span> Lahu <span style="color: pink;">■</span> Yi <span style="color: pink;">◊</span> Dai <span style="color: pink;">○</span> Dai (CDX) <span style="color: pink;">●</span> Mongolia <span style="color: pink;">■</span> Tuja <span style="color: pink;">◊</span> Miao <span style="color: pink;">◊</span> Yakut <span style="color: pink;">△</span> Kinh (KHV)	<span style="color: green;">▲</span> Papuan <span style="color: green;">△</span> Melanesian	<span style="color: purple;">■</span> Pima <span style="color: purple;">▽</span> Maya <span style="color: pink;">○</span> Colombian (CLM) <span style="color: pink;">●</span> Piapoco <span style="color: pink;">×</span> Peruvian (PEL) <span style="color: pink;">×</span> Karitiana <span style="color: pink;">▣</span> Surui
					<b>CARIBBEAN</b>	
					<span style="color: black;">×</span> Puerto Rican (PUR) <span style="color: black;">■</span> Barbados (ACB)	
					<span style="color: black;">●</span> Cape Verde	

**Figure S1. Locations of 79 populations that were combined with the Cape Verde data.** Genetic data from these populations were used to produce the dataset used in Figure 1. Portuguese settlement of Cape Verde began in the 1400s, beginning on Santiago around 1460. The remaining islands were settled over the following 400 years.



**Figure S2. Pipeline for preparation of the genotype dataset used in the study.** The data resulting from this pipeline were used in the genetic data analysis in [Figure 1](#).

Transcript

N ta lenbra sin. Na kel filmi, kel rapas staba xintadu si.. kel rapas panha kel masan...kel masan e ruma si... e ruma-l asi... e dura ku el ta ruma asi... dipos di kel, e staba xintadu pa si... e tene si kel otu kolega ki staba di la... aian, N odja si...

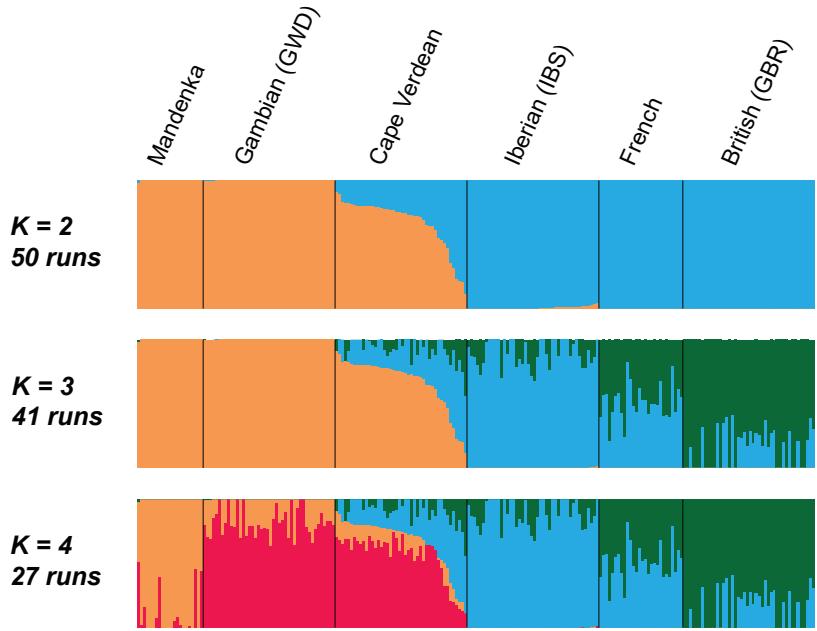
Counts

n	ta	lenbra	sin	na	kel	filmi	rapas	staba	xintadu	si	panha	masan	e	ruma	ruma-l	asi	dura	ku	el	dipos	pa	tene	otu	kolega	ki	di	...
2	2	1	1	1	7	1	2	3	2	5	1	2	5	2	1	2	1	1	1	1	1	1	1	1	2	...	

Count Matrix

	abo	bu	ago	agora	agu	agu	ami	antigu	arvi	arvori	arvuri	dexa	dipos	es	faze	fika	furta	gente	gosta	.	.	.	.	
Subject A	2	0	0	5	1	0	1	0	0	0	3	0	0	0	2	0	0	5	0	...				
Subject B	0	3	1	0	0	3	2	1	1	0	0	8	0	0	2	4	0	0	2	...				
Subject C	0	2	2	0	0	1	0	0	2	0	5	1	2	0	0	1	2	0	6	...				
:																								

**Figure S3. Word frequency profiles.** The number of times each unique word appeared in a given transcript was recorded. These counts were then compiled into a matrix with rows corresponding to individual subjects and columns to words. This matrix was used in the linguistic data analyses in [Figure 3](#).



**Figure S4. Downsampled ADMIXTURE analysis.** A sample of 226 individuals is considered. The analysis and figure design follow [Figure 1C](#).

**Table S1. Identification of words of African origin.** The table shows the list of words considered in the linguistic analysis in Figure 3.

Word	Category	Description
al	**	Marker signaling desire and probability. From Portuguese <i>há de</i> 'must do something' and Wolof <i>yálla</i> , expression invoking God ([S1]: 98; [S6]: 134).
banbudu	*	Adj. "carried on one's back". From <i>banbu</i> 'to carry a child on one's back' on Manding, Manjaku, and Mankañ ([S9]: 78).
djobe/i	*	'To look'. From Portuguese <i>olhar</i> and Mandinga <i>juubee</i> ([S4]: 150; [S6]: 218; [S9]).
Es	**	Third-person plural pronoun. From Wolof old form <i>lees</i> < <i>li</i> + <i>eess</i> ([S6]: 140). Wolof <i>mëneesu ko</i> 'one can't do it.' Brito in 1888 writes the Cape Verdean Creole pronoun in <i>ëss</i> with a long vowel is reminiscent of the Wolof form ([S3]: 343, 359). Lang proposes a double etymology from Portuguese <i>eles</i> and Wolof <i>eess</i> ([S6]: 141).
fepu	*	Quantifier 'all/entirely'. From Wolof <i>-épp</i> 'all/entirely', Mandinka <i>few</i> 'completely' ([S2]: 122).
Ka	**	Negative marker. From Portuguese <i>nunca</i> and different negative markers from Manjaku, in addition to other African languages in the region ([S1]: 95; [S6]: 129).
kabesa	***	Portuguese noun 'head'. Used as a reflexive in the same way that Wolof head <i>bopp</i> is used as a marker of reflexivization ([S6]: 184). [In our corpus, <i>roba-l riba kabesa</i> ].
korpu	***	Portuguese noun used as a reflexive. From Mankañ's expression with same meaning <i>u-leef</i> 'the body' ([S11]: 80).
kotxi	*	Verb 'to crush (corn or rice)'. Comes from <i>kócci</i> in Mandinka ([S2]: 125; [S8]: 76).
ku	***	Derived from Portuguese preposition <i>com</i> 'with' but used as a conjunction of coordination meaning 'and/with' and coordinating two nouns much in the same way that Wolof <i>ak</i> does ([S6]: 198).
kunpanheru	***	Portuguese noun meaning 'companion' but marking reciprocity in the same way that Bambara does ([S6]: 184).
la	*	Deictic marker signaling distance. From Wolof classifier <i>-l-</i> combined with deictic morpheme <i>-a</i> ([S6]: 147).
li	*	Deictic marker signaling proximity. From Wolof classifier <i>-l-</i> combined with deictic morpheme <i>-i</i> ([S6]: 147).
ma	**	Complementizer. From the older form <i>kuma</i> < Old Portuguese <i>coma</i> and Mandinka verb <i>kuma</i> 'to talk' and Mandinka morpheme <i>kó</i> combining the function of a verb 'to say' and a subordinate conjunction ([S6]: 129, 159).
moku	**	From Portuguese <i>mouco</i> 'drunk' and Wolof <i>mokk</i> 'to be pounded' ([S4]: 453) and meaning 'drunk' in Cape Verdean, Guinea Bissau, and Casamance Creoles, where the word has the same meaning ([S6]: 218; [S9]).
n	*	First person singular pronoun. From Balanta and Mandinka ([S6]: 129).
nbonji	****†	Type of beans.
nkontra	****†	To meet.
nsoda	****†	The meaning is unclear. <i>Nsoda</i> is not listed in the dictionaries that were consulted.
ntende	****†	To understand.
ntende	****†	To delegate.
ntrega	****†	To fill up.
nu	*	First-person plural pronoun. From identical Wolof pronoun <i>nu</i> with the same person and number ([S6]: 139). Also influenced by Portuguese <i>nos</i> , pronounced <i>nus</i> at the time of creolization ([S6]: 140).
ta	***	Aspectual marker. Functionally (semantically) equivalent to Wolof imperfective <i>-y</i> . <i>Ta</i> is viewed as an imperfective marker ([S6]: 161) that can be morphologically linked to Portuguese <i>estar</i> ([S6]: 162) but functionally behaves like the Wolof imperfective marker.

ten	***	Verb ‘to have’. Semantically and morphologically associated with Wolof <i>am/ame</i> to express permanent versus temporary possession ([S6]: 132; [S7]: 55).
tene	***	Verb ‘to have.’ See ‘ten.’
-ba	**	Anteriority marker. From Portuguese <i>-va</i> and Manjaku verb <i>ba</i> ‘to finish, to complete’ ([S1]: 94; [S6]: 129).
-du	**	Adjectival or past participle morpheme. Derived from Portuguese suffix <i>-do</i> and from the Wolof derivative suffix <i>-u</i> ([S6]: 183).
-m	*	First-person object pronoun. From Wolof or Bambara ([S6]: 140).

\*Words and morphemes that trace directly back to an African language. The 9 items marked with a single asterisk are the items included in an African-origin set of particularly high confidence.

\*\*Words that have a dual etymology, corresponding to cases of conflation between the European and the African languages and attesting to the intense contact between the two sets of languages.

\*\*\*Words or expressions that are clearly Portuguese, but whose semantics or phonology reveal substratal influences.

†Words characterized by prenasal consonants that have been argued to originate from African substratal phonology ([S8]: 81). Though the words themselves are Portuguese, their phonological realization reveals traces of African substrates.

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