A GRAMMATICAL AND GRAPHEMATIC COMPARISON OF FIVE CREOLE PRIMERS FROM THE DANISH WEST INDIES (1770–1825), WITH A PRELIMINARY PHONEMIC INVENTORY

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Abstract
This article offers a grammatical and graphematic comparison of the five known language primers (ABC books) in Virgin Islands Dutch Creole, including a newly discovered primer from 1782 (Anonymous 1782), along with a preliminary phonemic inventory based on these primers. The earliest primers are Kingo (1770) and Wold (1770), followed by the anonymous 1782 primer. Two later primers, from 1800 and 1825, are analyzed together, since they present two identical editions of the same text. The first three primers were produced by Lutheran Danish missionaries and printed either in St. Croix or Copenhagen, while the latter two were produced by the German Moravian Brethren and printed in Germany. The grammatical comparison, based on 17 selected features, aims to position the primers between Dutch, as the main lexifier of the language, and 20th-century Creole, as the final stage of its development. The findings suggest that the primers represent an intermediate stage with a closer affinity to 20th-century Creole than to Dutch. The graphematic analysis examines the primers' alignment with 18th-century Dutch spelling conventions. The results indicate that the Lutheran primers exhibit less alignment with 18th-century Dutch orthographic norms compared to the Moravian primers, which, in turn, display more Danish influence. Finally, the preliminary inventory of the phoneme system points to a strong connection with (Zealandic) Dutch in all the primers.

Keywords: Creole; orthography; evolution; primers; Dutch

1. Introduction

In this article, five language primers in Virgin Islands Dutch Creole (VIDC), also formerly known as Carriolse, Kreool, and Negerhollands, will be compared. The region referred to here as the 'Virgin Islands' was historically known as the 'Danish West Indies' during its time as a Danish colony, from the 17th century until 1917, when Denmark sold the islands to the United States, and they were renamed the 'United States Virgin Islands', the name they bear today. The primers are Kingo (1770), Wold (1770), Anon (1782), Anon (1800), and Anon (1825). For ease of reference, we will call them Kingo (after the author indicated on the cover), Wold (after the author), NN (as neither the author nor place of publication is indicated), Barby (after the place of printing), and Gnadau (after the place of printing). First, we will compare the primers grammatically, to position them between Dutch, the Creole's main lexifier, and 20th-century Creole, representing the final stage of the language's development. Second, we will compare them graphematically to examine their alignment with 18th-century Dutch writing norms. Third, on the base of this graphematic analysis, we will present a preliminary reconstruction of the phonemic inventory of 18th-century VIDC.

The first three of the five primers were created by Danish-Norwegian Lutheran missionaries, while the last two were produced by members of the Moravian Church or Unity of the Brethren (Unitas Fratrum). This religious movement originated in Herrnhut, Saxony, and traces its roots back to Protestant spiritual ideals developed in the mid 15-century in what is now the Czech Republic. Members of this movement are commonly known as Herrnhuters or Moravians.

The two Moravian primers, Barby and Gnadau, are virtually identical, showing no differences in graph selection or linguistic evolution. Therefore, we consider Barby as representative of both and will refer to a total of four primers throughout most of the article.

All primers include reading aids such as letters, syllables, and words to help train the enslaved population to read and write, followed by religious texts. Our grammatical and graphematic analysis as well as our reconstruction of the phonemic inventory will be based solely on the texts in the primers.

In section 2, we provide brief background information on the missionaries and their choice for using Creole in their religious work with the

enslaved. More can be found in Appel, Bakker & Robbe (this issue). In section 3, we give a brief overview of earlier work on language change, based on the 250-year range of documentation of the Creole. In section 4, we select a number of features that can shed a light on the grammatical development of the language. For the analysis, we use phylogenetic software (Bryant & Moulton 2004). In Section 5, we present – for the first time in the history of Creole studies – a graphematic analysis in which we compare the graphic inventories of the four primers. In section 6, we propose a hypothesis regarding the phonemic inventory of the language during the relevant period, when the language was still under development (Van Rossem 2017). The article concludes with a summary of our findings.

2. German and Danish missionaries and their use of Creole

Two main missionary societies were active on the islands: the Moravians from Germany and the Danish-Norwegian Lutherans. This is relevant because we might expect denominational language differences, similar to those found in Germany and Austria (up until the 18th century) between Catholic and Protestant religious groups (Macha, Balbach & Horstkamp 2012). The Moravian missionaries started their activities in the 1730s among the enslaved population, using the enslaved people's own language. Already in the 1730s, enslaved Africans learned to read and write. A large body of manuscripts has been preserved in their archives. The earliest texts were printed in 1742 (Zinzendorf 1742). Lutheran missionaries arrived in the 1760s, and the two religious groups do not seem to have cooperated (Dyhr 2001, Van Rossem 2017: 100).

The earliest known printed books with translations of religious texts date from the 1760s, while the first printed Lutheran publications date from 1770, when two ABC books (Kingo 1770, Wold 1770) appeared and a grammar of the language, not formally connected to the mission (Magens 1770; for a partial English translation, see Magens 2008).

There are a number of historical studies about the education and schooling of the enslaved on the islands, such as Hall (1979) and Lawaetz (1980, 1981); see also Appel, Bakker & Robbe (this issue).

The Danish and German activities continued on the islands, but the use of Creole as a church language was abandoned around 1839 (Lose 1891), although some Moravians continued to use it also some time after that date (Van Sluijs 2017: 38, referring to Larsen 1950). From this period

of religious activities, 25 printed publications in Creole are still extant, along with an unknown number of manuscript pages. We have selected the five primers for a more in-depth comparison, focusing on both a selection of grammatical traits, spelling, and the phonemic system.

The use of Creole by the missionaries has been discussed in a range of publications, for which, see Appel, Bakker & Robbe (this issue), Lose (1891), Dewitz (1889, 1907). For additional information, we can refer to Stein (1985a, 1985b, 1991, 1992, 1995).

3. Earlier studies of evolution of language in the VIDC material

Not many studies have been devoted to the study of the language in the primers. In fact, only Hvenekilde & Lanza (1999) have given them attention, but their study was limited to the first two primers produced by the Danish/Norwegian mission. Van Rossem & Van der Voort (1996) also discussed the primers and compared them. The primers did not play a significant role in the studies of changes in the language.

Stolz (1986) is an in-depth general study of changes in the language, and Van Rossem (2017) and Van Sluijs (2017) work with large bodies of historical materials. Van Rossem studied Moravian materials and Van Sluijs (2017) studied a.o. the evolution of tense-mood-aspect (TMA) through time. Van Rossem & van der Voort (1996) present a representative choice of religious and secular material from the entire period of documentation of the language as known at the time. Muysken (1995) studied variation in older texts. Krämer (2016) also discusses variation. A comprehensive and regularly updated overview of VIDC sources and a bibliography can be found on the website www.diecreooltaal.com (maintained by Cefas van Rossem).

It is worth mentioning that several creolists have expressed their skepticism about the use of older materials in VIDC for linguistic research. We mention just a few: Bickerton (1981) only wanted to work with living creoles, Williams (1984) does not consider the VIDC text material authentic or not representative for the speech of the primary speakers, the enslaved, and neither does Sabino (2012) for all of the translations and secular texts (see also McWhorter 1997: 174, quoted in Van Rossem 2017: 7). One of the aims of the study reported here is the first in a series, in order to test the reliability of the early materials, by computationally comparing a range of sources through time.

There has been ongoing discussion about which varieties of Dutch played significant roles in the genesis of VIDC, but there is general consensus that Southwestern Dutch dialects, particularly the Zealandic variety, were especially influential (see e.g. Van Rossem 2000).

Finally, it may be useful to mention a few studies that compare the three known Dutch creoles: VIDC and the two creoles from Guyana, Berbice Dutch and Skepi Dutch. Robertson (1989) compared the basic lexicon, Bruyn & Veenstra (1993) mostly grammatical traits, Stolz (1987) and Bakker (2014, 2017) lexical and grammatical traits, Sluijs et al. (2017) specifically verb-particle combinations and word order change. For future comparative work, the recently discovered Skepi materials, hitherto scarcely documented, are also relevant (Jacobs & Parkvall 2020, 2024). Interestingly, VIDC was also part of the world's first comparative study of creole languages with different lexifiers (Van Name 1869–1870). VIDC was also part of several comparative studies of creoles, e.g. Holm & Patrick (2007), Bakker et al. (2011) and APiCS (Michaelis et al. 2013).

4. Phylogenetic approaches relating to grammatical traits in the primers

In this section, we will investigate a selection of grammatical properties of the primers by focusing on a number of features in which the Creole deviates from Dutch. The features are selected on the basis of expected differences between Dutch and modern Creole, but also some features are included where all sources appear to align. We will compare them not only with each other but also with Dutch, the language that contributed most of the vocabulary but only minimally influenced the grammar. Finally, we will use phylogenetic software to visualize the relevant properties, tracking patterns and potential language evolution in the primers. Phylogenetic software enables researchers to visualize similarities, historical relationships and contact factors in network graphs. Programs were developed by evolutionary biologists, and have been in use by linguists for several decades, with good results. If indeed the data are authentic representations of the language used at the time, we expect a stage of development that is different from Dutch and from the 20th century material, the latter universally recognized as a typical creole language. Phylogenetic software is a useful tool for this.

Not all properties could be extracted to the same extent from all texts; one should realize that the quantity of text in Creole differs substantially from primer to primer. Kingo has ca. 1650 words, Wold ca. 1350, NN has ca. 1395 and Barby has only ca. 440 words. There are 17 features that appear appropriate for analysis, which will lead to 45 variables that will be measured. The 17 features and the variables will be discussed in this section, and presented in the end of the section in a comparative overview.

4.1 Personal and possessive pronouns

In Dutch and its dialects, nominative, oblique and possessive pronouns can be distinguished, even though some of these forms overlap. There are stressed and unstressed pronouns (here called emphatic and atonic), and there are three different case forms (nominative, accusative and genitive/possessive) and three gender-distinct forms in the third person singular in Dutch (neutral, masculine, feminine). The standard spoken Dutch forms are listed in Table 1.

	Emphatic	**Atonic**	**Oblique:** **emphatic, atonic**	**Possessive:** **emphatic, atonic**
1SG	ikke	ik, 'k	mij, me	mijn, m'n/me
2SG	jij	je	jou, je	jouw, je
3SG M+F	hij	hij, -ie	hem, 'm	zijn, z'n,
	zij	ze	haar, 'r, d'r	haar, d'r
	het	't	het, 't	zijn, z'n
1PL	wij	we	ons/onze	ons/onze
2PL	jullie	jullie	jullie, jullie	jullie, jullie
3PL	zij	ze	hen, hun	hun, hun

Table 1. Dutch personal and possessive pronouns

The Creole system is quite different. Only one or two forms are found for each person, derived from pronouns characteristic of Southwestern Dutch dialects. All case differences have disappeared, except in the third person singular, leaving only a distinction between possessive pronouns and personal pronouns. Also, there are no gender-distinct forms, unlike in Dutch for the third person. The forms are listed in Table 2 (shown below) for the four primers.

Except for spelling differences, the pronoun systems in the four primers appear to be virtually identical. There are no gender distinctions. They all display a difference between third person personal pronoun (*em*) and

possessive pronoun (*si*). Otherwise, there is no grammatical distinction between case, number and gender. Thus, only one set of pronouns is used, based on oblique Dutch forms, with the exception of the third person singular, which has retained the distinction between possessive *si* (from *zijn* 'his') and *em* (from *hem* 'him').

| | **Kingo 1770** | | **Wold 1770** | | **NN 1782** | | **Barby 1800** | |
	PERS	POSS	PERS	POSS	PERS	POSS	PERS	POSS
1SG	mi	mi	mie		mie	mie		
2SG	ju	ju	ju	ju	ju	ju	joe	joe
3SG	em	si	hem	sie, se	hem	sie	em	si
1PL	ons		ons	ons	ons	ons	ons	ons
2PL	jenner	jenner	jender, jellie	jender	jender jellie			
3PL	senner	senner	sender	sellie	sender	sender	sender	

Table 2. Creole personal and possessive pronouns in the ABC books

Kingo seems to show a unique development in which /nd/ in the second and third person simplified to /n/. He often has forms that seem closer to the vernacular than the other primers (cf. Hvenekilde & Lanza 1999, and observations below).

4.2 Prepositions
There are considerable differences in the number of distinct prepositions used. It was long believed that creoles had fewer prepositions than their lexifiers, and sometimes it was hypothesized to be like that, because several creoles have serial verb constructions that have functions comparable to prepositions in other languages. That appears not to be true in general (cf. Muysken 1987).

The number of distinct prepositions in the four primers range from eleven to 15. This difference is probably more a consequence of the quantity of text available in each of the primers, rather than that one should conclude that the number of prepositions decreased through time. Almost all have a clear Dutch source. Possible Dutch source prepositions are: ***aan*** 'on', *aster, Standard Dutch **achter*** 'after, behind', ***bij*** 'near, by', ***binnen*** 'inside', ***boven*** 'on top of, above', ***buiten*** 'outside', ***door*** 'through, by', ***met*** 'with', ***na*** 'after', ***naar*** 'towards, to', ***onder*** 'under', ***over*** 'about, over', ***tegen*** 'against', ***tot*** 'as far as', ***van*** 'of, from', ***voor*** 'for, in front of'. In

Table 3, the attestations of these prepositions in the four primers are presented.

Dutch source prepositions	Kingo 1770 (15)	Wold 1770 (13)	NN 1782 (13)	Barby 1800 (11)
aan				
aster, achter	aster	aster asteran	aster	aster
bij			bie	by
binnen	(na) binne	(na) binne		
boven	(na) bobo	(na) bobo		nabovo
buiten	bitten			
door	door	door	door	door
met	met		mit	met
na	na	na	na	na
naar	na binne na binne na na bobo na	na binne na binno na bobo	na binne	
onder	onder	onder na		
op	op	op	op	op
over	over		over	
te		tee	tee	tee
tegen	tegen		tegen	
tot	te?	tot	tot	tot
van	fan	van	van	van
voor	for	for, voor	voor, vor, for	voor, vor

Table 3. Dutch and Creole prepositions

4.3 Serial verb constructions
There are no serial verb constructions in the four primers. In the 20th century material, there are some serial verb constructions (Van Sluijs 2013, De Kleine 2007: 266–267).

4.4 Tense-mood-aspect markers
In Dutch, a series of auxiliaries are used to express tense, mood and aspectual distinctions (TMA). For readers familiar with English and not Dutch: the Dutch way is similar in nature to the auxiliary system in English, yet different in almost all forms and meanings. In VIDC, other forms are used than in Dutch, or newly grammaticalized forms, cognate or not, to express

TMA, but invariably, the ranges of meanings are quite different from the Dutch cognates.

In all creoles, there are preverbal tense-mood-aspect markers, variously labeled particles, elements, auxiliaries, prefixes or simply markers. In VIDC, some of these markers are found as well, and they are also encountered in all of the primers. The inventory is slightly different, however, as shown in Table 4.

Preverbal TMA markers in De Josselin de Jong's texts (Van Sluijs 2017: 74)	Kingo 1770 (6)	Wold 1770 (6/7)	NN 1782 (4)	Barby 1800 (3)
zero-marking 'present; past, (future)'	Ø	Ø	Ø	Ø
ha/a 'past'	ha	ha	ha	a
ha fo 'necessity', 'obligation', 'suggestion', 'epistemic necessity'	n.a.	n.a.	n.a.	n.a.
kaa 'perfect'	ka	ka	ka	ka
kan 'habitual', 'possibility', 'permission', 'epistemic possibility'	kan	kan		
lo 'imperfective', 'prospective'	le	le		
lo lo 'prospective'	n.a.	n.a.	n.a.	n.a.
mangkee (fo) 'volition'	n.a.	n.a.	n.a.	n.a.
n.a.	mussi	mussie		
	mut	mut	mut	sal
sa(l) 'future'	sa	sa		sal
sa kaa 'conditional', 'perfect', 'counterfactual', 'deontic necessity'	n.a.	n.a.	n.a.	n.a.
wel 'volition'	vil	wil	wil	n.a.

Table 4. Preverbal TMA particles in the four primers

Rough semantic interpretations of the forms as found in the primers are given in Table 5 (below), where Dutch source forms (and one from Spanish) are added for comparison. The number of forms encountered in the four primers correlates roughly with the quantity of text provided. The 1770 primers contain more texts.

In the primers, the form *vil/wil* refers to future tense in Kingo, Wold and NN but it is absent in Barby. The Dutch verb/auxiliary has volitive meanings, and that is also the case in all four of the primers. In the 20th century, it is exclusively volitive. There are a few additional changes between 1770 and the 1920s: *mut/mussi* is replaced by *ha fo*, and *le* replaced by *lo*, but otherwise the system seems remarkably stable.

	Meaning	Source	Meaning in source language
a, ha	past tense, preterit	Dutch *had* 'had'?	'had', 'to have'
ka	perfective aspect	Spanish *acabar*	'to finish'
kan	potential	Dutch *kan* (*kunnen*)	'can', 'be able'
le	present tense, nonpunc-tual	Dutch *lopen* or Dutch *leggen*	'to run' 'to lay'
mut, mussi	deontic, obligational	Dutch *moeten*, *moest*	deontic, obligational 'must'
wil	future, volitive	*wil*	volitive 'want'
sa, sal	future	*zal*	future 'will'

Table 5. Sources of TMA markers

4.5 Complementizers and clause combiners

All primers use the complementizer *for*, to introduce purposive clauses. This development of a preposition meaning *for* into introducers of purposive clauses is a very common process in creole with all lexifiers: Dutch *voor*, English *for*, French *pour*, Portuguese *para*, Spanish *para*, are being used as complementizers in creoles, usually in shorter forms*: fo, fi/fu, pu, pa*. In all four primers, we find *for* or *vor* followed by a verb, used to introduce purposive clauses. This is also found in modern Southwestern Dutch dialects, though always with an infinitival marker *te*, e.g. *goed voor te eten, voor te slapen* 'good to eat, to sleep'.

In addition, we find the following coordinating complementizers: *en* 'and' (all four), *ma/maar/maer* (all four)*, of* 'or' (all but Barby). Subordinators are also found, such as: *aster* 'after', *diemaek* 'because', and *voordoor* 'because', which have no equivalents in Standard Dutch.

4.6 'That' after verba dicendi

Several creoles use (an abbreviated form of) the verb meaning 'to say', 'to speak' as a complementizer after a verb referring to a speech act, but often extending beyond that, after grammaticalization towards a broader meaning. That is also the case in 20th century VIDC*,* where *see* from Dutch *zeggen* 'to say' is used as a complementizer:

(1)
*Nu di kining no a weet **see***
now DET king NEG PST know **say**
də man a kaa maa een boot ʐeil bo di lan.
DET man PST can make INDF boat sail on DET land
'Now the king didn't know **that** the man could make a boat sail on land.'
(De Josselin de Jong 1926: 43; as quoted and glossed in Van Sluijs 2017: 79).

This is not found in any of the four primers. In all four of the primers, *dat* is used, as in Dutch.

4.7 Plural marking
Plural marking is generally not inherited from the lexifiers in creoles, and new forms are developed to express plurality, which is often optional.

In VIDC, different ways of expressing plurality are attested, and also in the primers we find various ways of marking plurals:

- Direct borrowing of the Dutch plural forms, e.g. *skuld**en***, *skuldenaar**s*** (Barby) and *been**en*** 'legs' and *skyldenar**s*** (NN) from Dutch *schuld-**en**'* 'debts', *ben-**en*** 'legs' and *schuldenaar-**s*** 'debtors'; in Kingo and Wold these Dutch plural affixes are not found, only in the word *ouers/ouders* 'parents', which seems to be a lexicalized form.
- A third person plural following the noun, e.g. *skyldenar senner* (Kingo), *skyldenaer sender* (Wold).
- A word meaning *all* is used, sometimes also in combination with other plural markers: *algar/allega* (Kingo), *almal/almael/allema/al-lemaal* (Kingo, Wold, NN, Barby). These are from Dutch, where the first term is archaic. This possibility for pluralization had disappeared from VIDC by the 20th century.
- Zero-forms: semantically plural nouns are not marked formally for plurality: *skylt* (Kingo), *skyld* (NN) 'debt', *gebot* 'commandments' (Wold). This is absent in Barby, and rare in the others.

The Dutch plural forms and the postnominal particles are clearly most common. See also Hvenekilde & Lanza (1999: 283–286) for more details and Sabino et al. (2003: 158–168) for modern Creole.

4.8 Copulas
Creoles may or may not have distinct overt forms for all the different constructions where European languages use a copula, whereas Dutch, and Standard Average European languages, use a copula for a range of functions. Here follow some examples from Dutch, where a range of semantic functions and constructions require the use of a copula, in this case *is* or *zijn*.

Nonverbal predication:	John is big	Jan **is** groot
Identification:	This is a snake	Dit i**s** een slang
Class inclusion	Jan is a carpenter	Jan **is** timmerman
Equation	Jan is my father	Jan **is** mijn vader
Location:	John is in the house/there/in London	
	Jan **is** in het huis/daar/in Londen	
Existential:	There **is** sand in the Sahara/there **are** lions in Africa	
	Er **is** zand in de Sahara/Er **zijn** leeuwen in Afrika	
Passive AUX	It is (getting) cooked	Het **is**/wordt gekookt
Possessive	It is John's	Het **is** van Jan

In Dutch, a copula is used in all these cases, and these can have different shapes, not depending on the meaning, but on person/tense/number agreement. An impression of the range of forms, several of them derived from different roots, can be glanced from the selection of these forms found in Dutch:

Ik **ben** 'I am', jij **bent** 'you are', hij/zij/het **is** 'he/she/it is', wij/jullie/zij **zijn** 'we/you/they are'

Ik /jij/hij/zij **was** 'I/you/he/she is', wij **waren** 'we were', ik ben **geweest** 'I have been', **wees**! 'be!', te **wezen** 'to be', te **zijn** 'to be'

A recurrent pattern in creole languages is that nonverbal predications have no copula, and that locative and existentials have a copula (and the same form for both), whereas identification and class inclusion have often a different copula.

For modern VIDC, Van Sluijs (2017: 76) distinguishes seven copulas, with a rather mixed distribution of meanings. The realis/subjunctive distinction does not seem to play a role, and neither the locative/existential versus other uses, as found in some other creoles.

As for older materials, three forms are encountered in the primers that are derived from the Dutch copula: *bin*, *ben* and *wees*. It could be that *bin* and *ben* are mere spelling variants, which would mean that there are two forms. In addition, there could be a zero-copula, as found in several creole languages. The four primers seem to use these two overt forms with some functional differences.

Kingo uses *bin* for identity (*ju **bin** di KonigRik* 'you are the Kingdom'), locative (*Gemeinte, di **bin** overal*). He uses *ves* in irrealis and imperative mood, as *in senner mut **ves** frei for ju* 'they must be good for you', ***ves** nykter* 'be temperate'. Wold has a similar distribution of *bin* and *wees*. Rarely Kingo uses a zero-copula, as in the possessive construction *di, di fan im* 'those that are his'. Here, Wold has *die **bin** van hem*. Also NN uses *bin* in most functions, and *wees* in subjunctives and imperatives. Barby has *ben* and *wees*.

In addition, Kingo uses *kom* for a change of state (*em sa **kom** salig* 'he/she will be blessed') and for a permanent state *lop* or *bliv* as in *em sa **lop** forloor* 'he/she will be lost' and *em **blif** na mi* 'he will stay in me'. Wold uses *kom* as well as *blief* with similar meanings. It is also the common way to express change of state in the southwestern dialects of Dutch, as early as the 13th century.

There seems to be a distinction throughout the primers, where *bin/ben* is used for realis and *wes/ves/wees* for imperatives and irrealis, that is, subjunctive. This has no parallel in Dutch nor in 20th century Creole.

4.9 Passive constructions
Often, passive constructions of the type *X is V-ed by Y* are not found in creole languages. VIDC is one of the exceptions. However, in only one of the cases (NN), passive morphology is used in a type of construction as found in Dutch.

Kingo sometimes uses an auxiliary: *so as di **stan** skrif hi-so* 'as it stands written here', but usually no auxiliary: *ka geboren fan Jong Frou Maria, matta na onder Pontio Pilato, spikker fas na di Krushout, doot en graf* 'he was born from the Virgin Mary, killed under Pontius Pilatus, nailed to the cross, dead and buried'. Note also that verb stems are used, and not forms derived from the past participle, unlike in Dutch.

Wold uses the auxiliaries *bin* and *wort*: ***bin** gebooren van die Maeget Maria; Ha **wort** pina onder Pontius Pilatus, ha **wort** gekryesigt, doot en begraef*. Wold uses sometimes the common uninflected verb forms, and sometimes the Dutch past participle. Only NN uses *bin* combined with passive auxiliaries: *die **bin ontfangen** van die Heilig Geest, gebooren van die Maegd Maria, **gepient** onder Pontius Pilatus, **gekrusigt**, doot en **begraven***.

Only NN uses the uninflected copula *wordt*, as in *sal **wordt** verduemt* 'will be doomed'. Barby also uses the copula *word*, as in *Joe Naam **word** geheiligt*.

20th century VIDC does not use *word(t)* or other Dutch-type passive constructions.

4.10 Separable compound verbs (verb-particle combinations)
Dutch has so-called separable compound verbs, or in Dutch *scheidbaar samengestelde werkwoorden*, also known as verb-particle combinations. Those are verbs that sometimes behave like a compound, but specific parts of them can be separated from each other. An example would be the verb ***aankom**en* 'to arrive', with inflected forms like *dat ik **aankom*** 'that I arrive' and *ik **kom aan*** 'I arrive', and *om op tijd **aan** te **kom**en* 'in order to arrive in time'.

Interestingly, all four primers have such verbs, and in all cases the two elements are (written as) separated from one another:

Example	English translation	Dutch infinitive
1770 Kingo		
En di Voort le **praet yt**	'the Word is pronounced'	(Dutch: uitpraten)
Spikker fas na di Krushout	'nailed to the wood of the Cross'	(vastspijkeren)
Lop yt	'go out'	(uitlopen)

stort yt for jenner	'poured out for you'	(uitstorten)
En **trek** mi **yt** fan allema Qvaet	'and draw me out from all evil'	(uittrekken)
No la stan ju Heilig Engel senner **lop** nit een Plek **vei** fan mi	'do not let your Holy Angels depart from me'	(weglopen)
So **mak** jenner Sin **los** van die Verel	'thus, free your mind from the world'	(losmaken)
Kinder, da jenner no **hou an** na die sondig Lust	'children, do not cling to sinful desires'	(aanhouden)
Di ha **bring yt**	'they have been brought out'	(uitbrengen)
Mie kan **gruj op**	'I can grow up'	(opgroeien)

1770 Wold

Hem le **draeg Sorg** voor die Vogel sender	'he takes care of the birds'	(zorgdragen)

1782 NN

Ha **vaer op** na die hemel	'He ascended into heaven'	(opvaren)
Loop heen na die heel wereld	'go away to the whole world'	(heenlopen)
Ju **maek open** ju mildig hand	'You open your generous hand'	(openmaken)

1800 Barby

Em ka **maak bekent** na ons die wil van God	'he made known to us the will of God'	(bekendmaken)
Em ka **staan op** na die derde dag	'He rose on the third day'	(opstaan)
Hem ka **vaer op** na he-mel	'He ascended into heaven'	(opvaren)
Voor **neem wee** ons Sondo-Skuld	'to take away the debt of our sins'	(wegnemen)

In all cases, the particles follow the verb, whereas they can be in variable positions in Dutch, included attached to the verb stem. These constructions are also used in 20th century VIDC. See also Sluijs et al. (2017) for more on this type of constructions in VIDC and other creoles spoken in contact with Dutch. Though derived from Dutch, the positional possibilities are much more limited in the Creole language of the primers. The order in Creole is always verb-particle but they are not necessarily adjacent.

4.11 Adjectives

Dutch adjectives usually have two forms, one identical to the root, the other with an inflectional suffix *-e*, as in *een klein huis, het klein**e** huis* and *klein**e** huizen* versus 'the/a small house, small houses'. The inflection only appears in attributive use. The Dutch rules and the phonological and orthographic consequences are largely irrelevant for VIDC, as the rules are lost in the creole. Yet, there are some primers where forms with and without the inflectional ending are used.

Wold (1770) and Kingo (1770) NEVER use adjectives with an inflectional ending, and we can safely assume that the adjectives are uniformly root-based.

1770 Wold:
Daglik broot 'daily bread', *Almagtig skepper/Godt vaeder* 'Almighty Creator/God the Father', *Eenigst soon* 'only Son', *Heilig geest/engel* 'Holy

Spirit/angel', *Algemeen kerk* 'universal church', *Nyw testament* 'New Testament', *Ju fraej hant,* 'your good hand', *Almael creatier/qwaet* 'all creatures/evil', *Groot dankie/dank,* 'great thanks/gratitude', *Pover kint* 'poor child', *Vals leer* 'false teaching', *Waer liefde* 'true love', *Qwaej geselskap* 'bad company', *Fraej plantje/verstant* 'beautiful little plant/reason', *Guej manier* 'good manner'.

1770 Kingo:
Deen of Latiin tael 'Danish or Latin language', *Daglik broot* 'daily bread', *Almagtig maker* 'Almighty Maker', *Heilig gees/engel* 'Holy Spirit/angel', *Evig leef/Lif* 'eternal life', *Allema Kreatyer/Qvaet* 'all creatures/evil', *Niev testament* 'New Testament', *Frei Gut* 'good God', *Groot Danki* 'great thanks', *Allega Qvaet* 'all evil', *Ju liefde soon* 'your beloved Son', *Mi pover kint* 'me poor child', *Ret Pat* 'straight path', *Fals Leer* 'false teaching', *Frei plantki* 'beautiful little plant', *Guij Maneren* 'good manners', *Ju frei en sutto Got* 'good and sweet God', *Sondig Lust* 'sinful desire', *Grooto Baes* 'big boss', *Evig Testament* 'eternal Testament'.

1782 NN:
In the NN primer, we find *Die Nyw**e** testament*, *Ju groot**e** guedhed,* but inflectional marking is missing elsewhere where it would be expected in Dutch. *Daglig brood* 'daily bread', *Almagtig skepper* 'Almighty Creator', *Heilig geest* 'Holy Spirit', *Christelig kerk* 'Christian church', *Heilig mensen/Englen* 'holy people/angels', *eewig Leven* 'eternal life', *die heel wereld* 'the whole world', *Almael creatieren/volk* 'all creatures/people', *Die Nywe testament* 'the New Testament', *Ju mildig hand* 'your merciful hand', *Ju groote guedhed* 'your great goodness', *Ju lieve soon* 'your beloved Son', *Eewig en eenig almagtig godt* 'eternal and only almighty God', *Mie pover kind* 'me poor child', *Regt beginning* 'right beginning', *Qwaej geselskap* 'bad company', *Fraej plantje/verstand* 'beautiful little plant/reason'.

Barby 1800:
Daaglik Brood 'daily bread', *Heilig Geest* 'Holy Spirit', *Waarachtige God/Mensch* 'true God/man', *Groot Aermoed* 'great poverty', *Skoon Hert* 'pure heart', *Joe liefe Soon* 'your beloved Son', *Joe heilig woord* 'your holy word'.

There is one adjective that has a special form, ending in the inflectional vowel of Dutch. The inflected form *lieve* or *liefde* (cf. Dutch *lieve*, *lief* 'dear, beloved'*, geliefde* 'beloved, loved') is always used, and never the root form *lief*. In this case, it also seems to be an uninflected form, derived from an etymologically inflected form. Whether there are phonological environments that play a role, remains speculative. The forms *nywe* and *lieve* both end in [v, w].

In short, there is no evidence for adjectival inflection, based on all the attributive forms found throughout the primers. The few forms that end in *-e* are most likely lexicalized.

4.12 Negation: no *and* niet een

Dutch has a sentential negator *niet*, appearing in different positions in different clause types, a nominal negator *geen*, always preceding a noun/noun phrase, and an anaphoric negator *nee* 'no', the first word in a speech turn.

In creoles, the negator typically appears between the subject and the verb complex, consisting of a verb and the preceding TMA markers, thus: subject-negation-TMA-verb-object. Sometimes there is also a sentence-final negative particle in creoles.

The VIDC primers consistently follow the creole patterns. The negator is *no*, which seems to be borrowed from Spanish or English. A typical example is *ju **no** sa dif* 'you shall not steal', where the negator follows the subject and precedes the TMA marker for future tense *sa*.

The form *geen* is only used once, in NN *ju no sal hab **geen** ander Godt, meer als mie* 'you will have no other God than me'. Note the double negation: *no* and *geen*. VIDC uses a different negator for noun phrases. Kingo (1770) uses *nit een*: *ju heilig Engel senner lop **nit een** Plek fan mi* 'your holy angels do move nowhere from me', as does Wold (1770) ***niet een** gut, die bin van hem* 'no things that belong to him'. NN and Barby have no examples of *niet een*.

Double negations are not only found in NN: *ju **no** sal hab **geen** ander Godt, meer als mie* 'you will have no other God than me', but also in Kingo: *ju **no** sa matta **nit een** Folk* 'you shall not kill nobody', and Wold: *Ju **no** sa hab **niet een** ander Godt meer as mie*.

These double negations seem to follow the pattern of bipartite negation in Middle Dutch. However, evidence suggests a functional distinction between single and double negation in 17th-century Zealandic Dutch, where

imperatives, particularly those expressing commands (as in all the examples above), typically lack double negation (Dietz et al. 2023). In short, single negation is completely innovated in the creole: the position of the marker, the forms and the combinability are all unlike Dutch, whereas double negation seems to follow a historical Dutch pattern but it does not align with the functional distinctions found in historical Dutch.

4.13 Causatives and transitivizers

Two forms are used for causatives and transitivizers: *lastaen* and *maek*. The first seems to be from Dutch *laat staan* 'let it be', the latter from the Dutch verb *maken* 'to make', in which language it can also be used as a syntactic causative.

The form *lastaen* is used by Kingo, Wold and NN. It would appear to be a permissive causative, like 'let' in English, as in *die Heer no sal* **lastaen** *sender ongestraft* 'the Lord will not leave them unpunished' (Wold); **lastaen** *ju heilig Englen wees mit mie* 'let your holy angels be with me' (NN).

The verb *mak/maak/maek* is used for transitivizing and for causatives. Here are some examples from all four primers: *mi sa* **mak** *em hoppo na di laste Dag* (Kingo) 'I shall make him rise on the last day', *hem le* **maek** *die Beest krieg sellie Beest-Jeet* (Wold) 'he makes the animals get their animal food', *mie ka* **maek** *ju toornig van Dag* (NN) 'I have made you angry today', *vor* **maak** *die Sondaars salig* (Barby) 'to make the sinners blessed'. These uses of *maak/maken* have parallels in Dutch (though with inflected forms in that language). The form *lastaan* is a clear innovation.

4.14 Possessive constructions

There is a possessive predicate in Dutch which is *hebben* 'to have', with a dozen or so different forms when inflected. The quantity of forms is reduced to just one or two in Creole: *ha* or *hab*. Kingo has consistently *ha*, Wold and NN have both *ha* and *hab*, and Barby has neither. Here are some examples from three of the four primers: *Elke Letter* **ha** *di self Naem* 'every letter has the same name' (Kingo), *Hem no* **hab** *Sin na niet een Man sie Been* 'He takes no pleasure in a man's leg' (Ps 147, 9–11) (Wold), *ju no sal* **hab** *geen ander Godt, meer als mie* 'you shall have no other God, but me' (NN), (no attestation in Barby). Alternatively, one finds 'is to/of me' construction: **van Joe ben** *die Koningrik* 'yours is the Kingdom' (Barby).

As for attributive possession, one should distinguish between constructions with possessive pronouns and those with two full nouns. When pronouns are used, the personal pronouns invariably precede the noun: *ju naem* 'your name', etc. (see also section 4.1).

There are two main ways of expressing attributive possession in Dutch with full nouns: (1) *het huis **van** de man* (POSSESSED preposition POSSESSOR) and (2) *de man **'s /zijn** huis* (POSSESSOR marker POSSESSED). 20th century VIDC has the first type, as in *di andi shi **fan** di lan* 'the other side of the country' and a third type of construction, juxtaposition (3) POSSESSOR POSSESSED as in *di pushi kōp* 'the cat's head' (Van Sluijs 2013 in APICS, quoting examples from De Josselin de Jong 1926: 11, 16).

There are several ways of expressing possession involving two nouns in the Creole. The primers all have the first construction: *maker **fan** di Hemel en di Gront* (Kingo), *Skepper **van** die Heemel en die Aerde* (Wold), *Skepper **van** die Hemel en die Aerde* (NN) 'creator of the heaven and the earth', *die Hand **van** God* 'God's hand' (Barby). The second construction (*Die Heer **sie** Gebet/God **Si** Soon*) is found in Kingo, Wold and Barby, but not in NN. We also find juxtaposition: *si Fader ret Hant* 'his father's right hand', but only in Kingo.

20th century VIDC uses only the first construction with *fan* and juxtaposition, but not the second construction, N *si* N.

4.15 Relative clauses

Two Dutch relative pronouns are used in the primers: *welke*, which is in modern Dutch mostly limited to the written language, and *die*, which is used for animate referents; inanimate or neutral nouns in singular get *dat*, also *wat* in colloquial Dutch.

Kingo uses *velke* as in *mi Sondo senner, mit **velke** mi ka mak ju Qvaet* 'my sins, with which I have made you angry', as does NN as in *deese ju Gaven, **welk** ons van ju groote Guedhed sal ontfang* 'these gifts of yours, which we will receive from your great Goodness'; the others don't use it.

Three authors use *di(e)* as a relativizer: Kingo has *di senner, **di** le frees em* 'those of them who fear him', Wold *Ju **die** bin na binne die Heemel* 'you who are in the heaven', NN has *ju **die** bin nabinne die Hemelen*, whereas Barby seems to avoid relative clauses: there are none in the short texts.

4.16 Reflexive pronouns

Some creole languages use innovated forms for the reflexive, like 'my body'/ 'my head', whereas others use a more European-type construction with a pronoun meaning 'self'. The latter is the case in 20th century Creole (*sisel* 'him/herself' from Dutch *zichzelf*). In the primers as well, the Dutch construction is used: *mi le betrou mi self* 'I entrust myself' (Kingo, Wold), *(em) ha set hem self* 'he set himself". All four primers use it.

4.17 Reduplication

Productive reduplication is absent in all four primers, as well as in Dutch and in 20th century VIDC. See Sørensen & Bakker (2003) for a brief study. Most other Atlantic creoles display several reduplicative patterns.

4.18 A phylogenetic test

Above, we have discussed a few dozen different forms and constructions present or absent in the primers, Dutch and/or modern VIDC. All in all, 45 variables could be extracted from the discussion of the 17 phenomena discussed above, which could shed a light on the historical relations of the language varieties, and possible influences on one another. In this section, we will use phylogenetic software in order to visualize differences and evolutionary paths of the Creole language.

For this phylogenetic test, we use constructions where we can observe differences between Dutch, any of the four primers and 20th century Creole. This may shed light on the possible evolution and the differences between the different sources. When there are alternative constructions, we list all of them, without taking frequency into consideration. We use exclusively binary features, i.e., either presence or absence of a feature, or different constructions or forms. For primers where we lack information, we use a <?> in the database. For comparison, we have included Zealandic/Dutch, as a representative of the source language, and the phenomena as found in the texts collected by De Josselin de Jong, which reflect the creole in the 1920s. This allows for a comparison between the primers, their source language, and the creole in its final stage.

Let us first compare the relative distances between the four primers. Note that NN is called 1782 here and Barby is called 1800, as the years are important in these analyses.
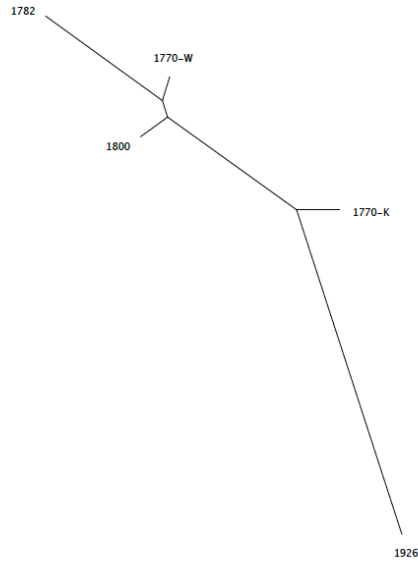
Figure 1. Structural distance between the four primers and 20th century Creole in a neighborjoining network

Figure 1 shows that Wold 1770 and Barby 1800 are very close to one another; they are the most similar ones, whereas NN 1782 is the most distant. Kingo is the primer that is closest to 20th century Creole, but not particularly close. Adding Dutch does not alter the configuration of the 20th century Creole and the four primers (Figure 2), but it is now clear that the NN 1782 text is closer to Dutch than the others, and Dutch is more deviant.
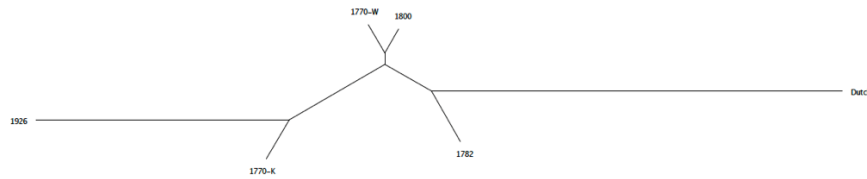

Figure 2. Neighborjoining network of the primers, 20th century VIDC and Dutch

These neighborjoining configurations only measure the degree of difference, but no inference is made about a temporal dimension. That is done in Figure 3. This is a rooted tree, in which Dutch has been assigned the root.

Figure 3. Rooted tree, with Dutch as its source

This diachronic dimension sketches a path from Dutch, via NN 1782, to Wold and Barby 1800, then to Kingo, and then to 20th century VIDC, more or less along the line of expectation. That Kingo's text is more colloquial than the others has been remarked before (Van Rossem & van der Voort 1996, Hvenekilde & Lanza 1999), and the computational phylogenetic test confirms this. Note, however, that Dutch is quite deviant from its presumed source, indicated by the long line. The four primers do not show a linear

development from the oldest printed one to the newest, but remember that they cover only 30 years, and some of the compilers were clearly more Dutch-oriented in their spelling and their grammar.

The final graph shows a network, which potentially shows influences between the choices made by the compilers. Again, Dutch and modern VIDC are the most deviant. The extra lines between the four primers could suggest that the authors were inspired by each other, but it can also just be the case that the authors relied on the same pool of features.
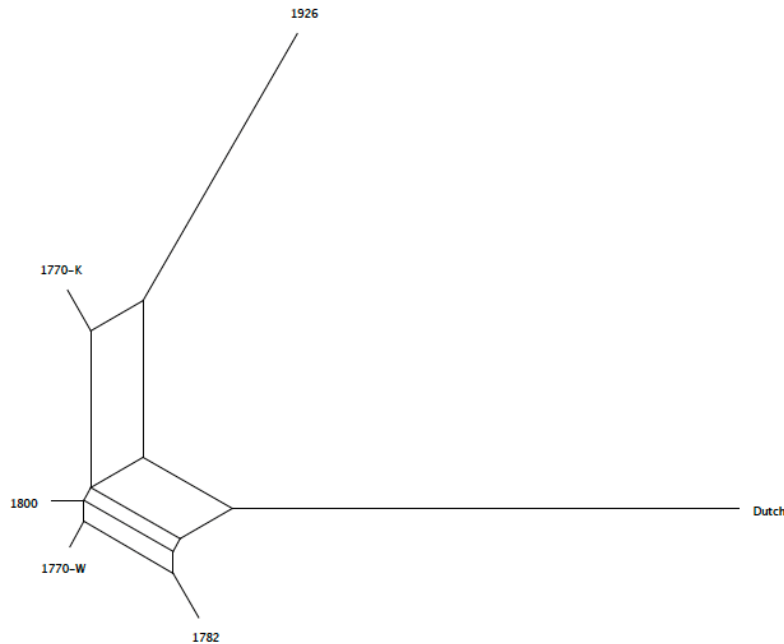

Figure 4. A neighbornet graph of the six sources

In short, the graphs partly confirm what others have observed, like the intermediate position of this stage of the language between Dutch and 20th century Creole and the more colloquial language used by Kingo. On the other hand, it appears that the Moravian primer hardly deviates in structure from the three Lutheran primers. This may be taken as an indication, that the primers reflect the language as spoken in the last quart of the 1800s, and that the Creole was more Dutch-like at that time than it was a century

later. A conclusion that all four primers were compiled by different authors may be premature, but it seems likely. The Moravian primer has a different author, and the anonymous 1782 primer is closest to Wold. It can be excluded that Wold is the author, as he died in 1770 (Lose 1891: 21). In Appel, Bakker & Robbe (this issue), a tentative compiler is identified: J.M. Magens, who also published a Creole grammar in 1770.

The comparison of the primers in this section was based on purely grammatical features. Another dimension is the choice of orthography by the four authors of the primers (if indeed there were four authors). This can be explored through a graphematic analysis, which will be conducted in the next section, where we will also clarify how this type of analysis differs from a phonological analysis.

5. A comparative analysis of the graphic inventories of the primers

We will now conduct a comparative analysis of the graphic inventories in the primers, focusing on their complexity (5.1) and composition (5.2). To assess the complexity of the writing systems in the primers, we will evaluate both the number of graphs and the number of letters within each graphic unit, allowing us to rank the primers on a complexity scale. In examining the composition of the graphic inventories, we will identify unique graphs in each primer, highlighting differences in graph selection. Finally, we will investigate possible explanations for these differences by analyzing the inventories' alignment with 18th-century Dutch spelling conventions (5.3).

Our approach follows the framework established by Robbe & Elmentaler (2024), while the English terminology is adapted from Seiler (2014). To ensure clarity, we begin by a short definition of the following key terms in our analysis: *letters*, *graphs*, *allographs*, *graphemes*, and *sound positions*. Whereas *letters* are distinct visual units within a given alphabet, *graphs* represent a graphic unit consisting of one or more letters that corresponds to a phonological unit in the reference system. While some graphs are based on a single letter (monographs), for example the graph <o> in *volk* 'person' and the graph <i> in *kind* 'child', others are based on multiple letters (digraphs, trigraphs etc.), for example the graph <dt> in *Godt* 'God' and the graph <ck> in *mack* 'to make' (digraphs). The corresponding units in the reference system are called *sound positions*, and the graphs that are used as variants to represent the same sound position are called *allographs* of one *grapheme* (cf. Seiler 2014: 92; see also Larsen

2014: 6). In classic structuralist terminology, a grapheme functions as a sign with a sound position being its 'signified' and the associated allographs being its 'signifiers'. Since Dutch is the main lexifier of VIDC, we will use the West Germanic (WG) reconstructed sound system, as presented by Elmentaler (2003, 2018), as our reference. This system allows us, for example, to classify the graph <dt> in *Godt* 'God' as an allograph of the reconstructed phoneme WG *d*, and <ck> in *mack* 'to make' as an allograph of WG *k*. This way, we can avoid speculative assumptions about the 18th-century VIDC sound system, and conduct a uniform analysis of the word forms in the primers.

For our analysis, we have examined both isolated words (e.g. those in titles and tables) and words used within the texts. First, we will calculate the complexity of the graphic inventories of the primers.

5.1 Complexity
We will begin by analyzing the vowel graph inventories, followed by the consonant graph inventories, and, finally, we will consider the combined results.

The vowel graph inventories of all four writing systems include the same six monographs: <e>, <a>, <o>, <i>, <u> and <y>. Therefore, the differences are confined to multigraphs only. These multigraphs represent not only WG diphthongs, such as <ei> in *eigen* 'own' (< WG *ai*), but also diphthongs composed of a WG vowel and a glide, such as the trigraph <eew> in *eewig* 'eternal', and the tetragraph <ieuw> in *nieuw* 'new' (the latter only found in Barby). Table 6 presents all the different vocalic graph types (monographs, digraphs, trigraphs and tetragraphs) in the individual primers.

Writing system	Monographs	Digraphs	Trigraphs	Tetragraphs	Total
Kingo	6	11	2	0	19
Wold	6	12	3	0	21
NN	6	7	4	0	17
Barby	6	12	11	1	30

Table 6. Vocalic monographs, digraphs, trigraphs and tetragraphs in the four primers

In order to determine the complexity of each individual writing system, we will apply a simple algorithm, which will provide a numerical value that is based on the variety and length of its graphs: *Complexity = (Monographs*

× 1) + (Digraphs × 2) + (Trigraphs × 3) + (Tetragraphs × 4). The algorithm yields the following complexity scores: Barby: 67; Wold: 39; Kingo: 34; NN: 32. Based on these differences, Barby is significantly more complex compared to the other systems, whereas Wold is moderately more complex than Kingo and NN, which are quite similar to each other.

For the consonant graph inventory, we find the following graph types as listed in Table 7.

Writing System	Monographs	Digraphs	Trigraphs	Total
Kingo	18	9	0	27
Wold	18	6	0	24
NN	18	9	0	27
Barby	20	12	2	34

Table 7. Consonantal graph types in the four primers

In contrast to the vocalic graphs, the consonantal graphs have simpler compositions. The only trigraphs present are <sch> and <ſch>, both of which are exclusive to Barby. Since there appears to be no difference in phonetic reference (e.g. *mensch* and *menſch* 'human, n.' in Barby), these trigraphs can be considered variants of the same allograph. However, we will still distinguish them, as the variation between <sch> and <ſch> contributes to the overall complexity of the graphic inventory.

Using the same algorithm as above, the complexity scores for the consonant graphs are as follows: Barby: 50, Kingo: 36, NN: 36, and Wold: 30. This indicates that Barby's consonant system, like its vowel system, is significantly more complex compared to the others, whereas Kingo and NN exhibit similar levels of complexity, and Wold has the least complex consonant system.

When combining the complexities of both the vowel and consonant systems, the resulting scores are: Barby: 117, Kingo: 70, Wold: 69, and NN: 68. These figures indicate that, while Kingo, Wold, and NN demonstrate moderate and relatively similar levels of complexity, Barby stands out with the most complex writing system, scoring 117. This significantly higher complexity is driven by both its vowel and consonant systems, suggesting that Barby displays far more distinctive graphic features than the other primers. These unique features will be specified in the next subsection, where we will identify the exclusive graphs of each primer.

5.2 Composition

In this subsection, we will examine the composition of the primers' graphic inventories. We will identify the graphs unique to each primer and, from these, assess the similarities and differences between the inventories from both a qualitative and quantitative perspective. Following the approach in the previous section, first, we will examine the vocalic graphs, and then the consonantal graphs.

As mentioned before, all primers contain the same six vocalic monographs: <e>, <a>, <o>, <i>, <u>, and <y>. The letters representing these monographs can be combined in digraphs with double spellings. In theory, six identical-letter digraphs are possible: <aa>, <ee>, <ii>, <oo>, <uu>, and <yy>. In practice, all primers include <ee> and <oo>, while <yy> is absent from all; <uu> does not appear in NN, <aa> is found only in Barby, and <ii> is unique to Kingo.

Regarding digraphs with non-identical letters, Barby is the only primer to use <oe> (representing WG ô and likely pronounced as an /u/-like sound), whereas the other three primers use <ue> to represent WG ô, a graph that is absent in Barby.

As shown in Table 6 above, the vocalic multigraph inventories in the primers include not only digraphs but also trigraphs, and in Barby's case, also a unique tetragraph, i.e. <ieuw>, further setting this primer apart.

Barby is also the only primer that uses |y| as a final letter in multigraphs, alternating with |i| and |j|, which also serve as graph-final letters in the other primers. Similarly, only Kingo uses |v|, while the others use |w| in the same Creole words. Table 8 below provides a detailed overview of the exclusive vocalic graphs found in the primers.

The examination of the consonantal graphic inventory also reveals distinctive features. First, only Kingo uses <i> as a consonantal graph, though exclusively in the pronoun *iu* 'you'. Second, Barby uniquely uses <u> as a consonantal graph, but only in the combination |qu|, as seen in the adjective *quaed* 'evil' (modern Dutch *kwaad*) and its derivatives. Third, Barby is the only primer to use the graph <z>, though, again, only in one instance: the adjective *noodzaaklik* 'necessary'. Fourth, Kingo is the only one that does not use the graph <w> (which is not used in Danish either, except in loans).

All texts show double consonant spellings. They share the digraphs <nn>, <pp>, <sk>, and <ſk>, but avoid <ss>, opting instead for variations

like <ſſ> (NN), <sſ> (NN), or <ſs> (Barby). While the digraph <kk> is absent in NN, it appears frequently in Kingo, Barby, and Wold. Interestingly, Barby stands out as the only primer with the digraphs <ch> and <ck>. It is also the only primer to include the trigraphs <sch> and <ſch>, and the only one to avoid the digraph <dt>, which is found in the other three primers. These differences in graph usage may seem minor, but they offer valuable insights into how closely the primers align with 18th-century Dutch spelling conventions (see 5.3). Table 8 gives an overview of all the exclusive graphs (A : vocalic; B : consonantal) in the primers, presented in the form of a binary matrix (0 = absent, 1 = present).

		Kingo	**Wold**	**NN**	**Barby**
A. Vocalic	**Digraphs**				
	<aa>	0	0	0	1
	<eu>	0	0	0	1
	<ev>	1	0	0	0
	<ew>	0	1	0	0
	<ey>	0	0	0	1
	<ii>	1	0	0	0
	<oe>	0	0	0	1
	<oj>	1	0	0	0
	<ui>	0	0	0	1
	<uj>	0	1	0	0
	<ye>	0	1	0	0
	Trigraphs				
	<aai>	0	0	0	1
	<aaj>	0	0	0	1
	<aay>	0	0	0	1
	<auw>	0	0	0	1
	<iev>	1	0	0	0
	<oei>	0	0	0	1
	<oej>	0	0	0	1
	<oey>	0	0	0	1
	<ooy>	0	0	0	1
	<ouw>	0	0	0	1
	<uij>	1	0	0	0
	Tetragraphs				
	<ieuw>	0	0	0	1
B. Consonantal	**Monographs**				
	<i>	1	0	0	0
	<u>	0	0	0	1

<w>	0	1	1	1
<z>	0	0	0	1
Digraphs				
<ch>	0	0	0	1
<ck>	0	0	0	1
<dt>	1	1	1	0
Trigraphs				
<sch>	0	0	0	1
<ſch>	0	0	0	1

Table 8. Exclusive graphs in the primers

This matrix allows us to assess the similarities and differences between the writing systems in two ways: qualitatively, by examining the features present or absent in the binary strings, and quantitatively, by calculating the pairwise distances between the primers using the SplitsTree algorithm, as presented in Table 9.

	Kingo	**Wold**	**NN**	**Barby**
Kingo	0	0.3125	0.21875	0.90625
Wold	0.3125	0	0.09375	0.78125
NN	0.21875	0.09375	0	0.6875
Barby	0.90625	0.78125	0.6875	0

Table 9. Distance values for graphic similarity

The numbers reflect the degree of difference between the primers' graphic inventories, with higher values indicating greater differences. These distances can be visualized in a neighbour-joining network (Figure 5, shown below), which clearly shows that Barby stands far apart from the others, highlighting its distinct graphic inventory. Wold, Kingo, and NN are clustered closer together, indicating greater similarity, with Wold and NN sharing the closest relationship. Kingo, although part of this group, is positioned further away. In other words, while Wold and NN occupy a more moderate and similar middle ground, Barby and Kingo represent two extremes in terms of graphic composition. In the next section, we will explore the reasons behind this contrast.

```
0 1 2 3 4 5 6 7 8  9.8
                                                          BARBY


                              WOLD ——— NN



                                   KINGO
```

Figure 5. A neighbour-joining network of the graphic distances between the four primers

5.3 Alignment with 18th-century Dutch spelling conventions

We will now analyze the differences in the graphic inventories of the primers by comparing them to 18th-century Dutch spelling conventions. By the 18th century, Dutch spelling had already achieved a significant degree of standardization, largely influenced by Arnold Moonen's *Nederduitsche Spraekkunst* ('Dutch Grammar'), which was published in 1706. Moonen's work remained a major reference throughout the 18th century, with recent research showing that later grammatical works were deeply indebted to it (Schaars 2006: 172). Although our primary reference will be Moonen's *Nederduitsche Spraekkunst*, we will also consider two other influential 18th-century grammars – Lambert ten Kate's *Aenleiding tot de kennisse van het verhevene deel der Nederduitsche sprake* (1723) and Willem Sewel's *Nederduytsche Spraakkonst* (1708) – to provide a more comprehensive analysis.

All primers adhere to Dutch spelling conventions in their use of the letters |a|, |e|, |i|, |o|, |u|, and |y| to represent vocalic monographs (Moonen 1706: 2; Sewel 1708: 2). Of these, |a|, |e|, |o|, and |u| can be doubled to form digraphs, while |y| and |i| cannot (Moonen 1706: 19–20; Sewel 1708: 21). Moonen explicitly states that <ii> had completely fallen out of use by the early 18th century, a development he applauds for aesthetical reasons (Moonen 1706: 20). Notably, the digraph <yy> does not appear in any of the primers, and only Kingo uses <ii>. Because <ii> was a common graph in 18th-century Danish spelling, we can assume that Kingo's writing may

have been influenced by Danish orthographic practices rather than Dutch ones in this particular instance.

While all primers use the digraphs <ee> and <oo>, the digraph <uu> is absent in NN, where <ue> appears instead. For example, we find *vuur* 'fire' and *uur* 'hour' in Barby, *huur* 'hire' in Kingo and Wold, but *huer* in NN. However, the use of <ue> instead of <uu> was not uncommon in 18th-century Dutch. Ten Kate (1723: I, 117) acknowledges the free variation between the two forms, while Sewel (1708: 28) also recognizes this variation but personally prefers <uu> over <ue>. Thus, it is reasonable to say that all the primers conform to Dutch spelling conventions in this regard.

The digraph <aa> is found only in Barby, cf. *maak* 'to make' (Barby) vs *mak* (Kingo) and *maek* (Wold, NN). In the 18th century, <aa> replaced <ae> as the standard, though this shift, promoted by 17th-century literary figures like Pieter Corneliszoon Hooft (1581–1647), was resisted by some grammarians. Moonen, for example, acknowledged <aa> as the new norm but still preferred <ae> (as seen in *spraekkunst* rather than *spraakkunst* in his book title). Ten Kate (1723: 188) accepted both forms as completely equivalent, while Sewel (1708: 3) supported <aa>. In any case, Barby appears to be the only primer using the 'progressive' <aa>-spelling.

Especially Kingo's use of <v> where the other texts have <w> is remarkable. Where Kingo spells *ves* 'to be', *viis* 'to show', *verel* 'world', *vant* 'because', *bevaer* 'keep', and *voort* 'word', the others spell *wees*, *wies*, *weerelt* (Wold), *weereld* (NN), *werld* (Barby), *want*, *bewaer*, *woort* (Wold), *woord* (NN and Barby). Again, this feature points towards Danish rather than Dutch orientation. Similarly, Kingo also spells *evig* 'eternal', *evigheit* 'eternity', and *niev* 'new', whereas the others spell *eewig*, *e(e)wigheit*, *nyw* (Wold), *eewig*, *eewigheid*, *nywe* (NN), *eewigheid*, *nieuw* (Barby), using |v| instead of |w| as a final letter in vocalic graphs.

Equally distinctive is Barby's use of |y| in this position, reflecting a usage aligned with 18th-century Dutch spelling conventions, in which |y| alternates with |i|. Although Moonen acknowledges this variation, he still prefers |i| (Moonen 1706: 32), while Ten Kate expresses no clear preference (1723: 119–120). Sewel, however, is more restrictive, rejecting |y| in trigraphs and allowing it only in the digraphs <ey> and <uy> (1708: 3). Notably, none of these grammarians mention the possibility of using |j| as a final letter in vocalic graphs. This usage diverges from Dutch spelling

norms and appears to be influenced by Danish conventions. All four primers contain such spellings: *doje* 'the dead', n. (Kingo), *qwaej* 'evil', *guej* 'good', *bluj* 'to blossom', *gruj* 'to grow' (Wold); *dooje* 'the dead', n., *qwaej* 'evil', *draej* 'to turn', *gueje* 'good', *bluej* 'to blossom', *gruej* 'to grow' (NN); and *mooj* 'beautiful', *quaaje* 'evil', *moej* 'tired' (Barby). Kingo also uses |i| in *tai* 'tough', *ʃai* 'to sow', and *qvai* 'evil', and combines |i| and |j| in *gruij* 'to grow', *bluij* 'to blossom', and *guij* 'good'. Barby uses |i| in *draai* 'to turn' and *koei* 'cow' and is the only one to use |y| in *gooy* 'to throw', *rooy* 'red', *ʃaay* 'to sow', *waay* 'to blow', and *groey* 'to grow'.

Widely accepted 18th-century Dutch graphs include <oe> in words like *goet* 'good' (Moonen 1706: 207), representing an /u/ sound from WG ô, and <z> representing a voiced s-sound, as in *zant* 'sand' (voiced) vs. *sant* 'saint' (unvoiced) (Moonen 1706: 17). Both graphs are exclusive to Barby. Kingo, in contrast to this, uses <u> in stead of <oe> to represent this /u/-sound, similar to the Danish representation of /u/, while the other primers use <u> and <ue> (Wold, NN), and all three (Kongo, Wold, NN) lack the graph <z>.

Only Barby uses the graphs <ch> and <ck>. Also this graph usage conforms to 18th-century Dutch spelling conventions. Moonen presents <ch> as preferable to <g> for the phoneme /x/ before <t> in words like *licht* 'light' and especially after <s> in words like *schip* 'ship' and *schoon* 'beautiful' (Moonen 1706: 5). In Barby, we find *macht* 'might, power', *gedachten* 'thoughts', *recht* 'just', *nacht* 'night', *dienstknecht* 'servant', where in the other primers, we find *magt* 'might, power' (NN) and *almagtig* 'omnipotent' (Kingo, Wold, NN), *gedagten* 'thoughts' (Kingo, Wold) and *gedagtnis* 'memory' (NN), *regt* 'just' (Wold, NN) and *rekt* 'just' (Kingo), *nagt* 'night' (NN), *knegt* 'servant' (NN). Barby uses <ʃch> in *waarʃchouw* 'to warn' and *Menʃch* 'human, n.', and <sch> in *mensch* 'human, n.', which further sets him apart.

In combination with |q|, Moonen (1706: 11), as well as Sewel (1708: 25) and Ten Kate (1723: 78) point out that the letter |u| should be used to represent /kw/. This corresponds to Barby's spelling *quaaje* 'evil', *quaat(doen)* 'doing evil things', *quaalik* 'evil', *quad* 'evil, n.'; whilst Wold and NN use |w|: *qwaej* 'evil' (Wold, NN), *qwaet* 'evil, n.' (Wold), and Kingo uses |v|: *qvai* 'evil', *qvaet* 'evil, n.', *beqvaem* 'fit, equipped'.

Finally, also the absence of the graph <dt> in Barby seems to align with 18th-century Dutch spelling conventions. Moonen argues that <dt>

should only be used for the 2nd and 3rd person present indicative of verbs with stems ending in -*d*, such as *vindt* '(he/she/it) finds' from *vinden* 'to find'. Arguably, the fact that <dt> doesn't appear in Barby could result from adhering to this spelling rule, since VIDC verbs lack inflection.

Viewed together, these differences in graph usage explain why Barby and Kingo represent two extremes of the compositional spectrum. Barby adheres most closely to 18th-century Dutch spelling conventions, while Kingo diverges the most, primarily due to Danish influences in his spelling.

5.4 Conclusions: comparative analysis of the graphic inventories

In conclusion, the comparative analysis of the graphic inventories of the primers reveals significant differences in their complexity and composition. Barby's writing system stands out as the most complex one, both in its use of vocalic and consonantal graphs. In contrast, Kingo distinguishes itself through its unique graph selections, which reflect a pronounced Danish influence. It is clear that Barby and Kingo represent two extremes on a spectrum: Barby aligns more with Dutch spelling norms and shows minimal Danish influence, while Kingo follows the opposite pattern, exhibiting stronger Danish influence with less adherence to Dutch spelling conventions. Wold and NN fall between these extremes, featuring fewer distinctive characteristics and adopting a more balanced approach. The variations in the primers' graphic inventories not only highlight their individuality, but also reveal how 18th-century VIDC writing evolved under Dutch and Danish spelling influences, with the Moravian primers aligning more closely with contemporary Dutch conventions than the Lutheran ones.

6. A preliminary study of the phonemes of the language of the ABC books

In the preceding section, we investigated the graphematic properties of the Creole primers. In this section, we will deal with conclusions we can draw on the nature of the consonants and vowels, in connection with Modern Dutch and Modern Zealandic phonemes. Ideally, we would have used 17th or 18th century dialectal Dutch phonemes, but we use Modern Dutch and Modern Zealandic as a proxy.

6.1 Consonants

We can assume that the consonants were quite similar to those of Modern Dutch and Modern Zealandic, with only three uncertainties. First, there are three phones that are complementarily distributed across certain Modern Dutch dialects and Modern Virgin Islands Dutch Creole. The phoneme represented by <g> or <ch> in Modern Dutch can be realized as an unvoiced velar fricative /x/ in most Northern dialects, including Zealandic; as a voiced velar fricative /ɣ/ in Southern dialects, including Flanders; and as a stop /g/ in Modern Virgin Islands Dutch Creole (De Josselin de Jong 1928: 10, with <g> pronounced as /g/ as in English *good*). The current data from the primers do not allow us to conclude which phoneme(s) the grapheme <g> represents in the primers, therefore it is found in connection with all three, and with question marks in the tables below.

The second uncertainty is the presence of a sibilant phoneme /ɕ/ or /ʃ/ and the affricate /tɕ/ as in equivalents of Dutch <meisje> 'girl' and <plantje> 'small plant'.

The final uncertainty is the phonetic value of the grapheme <w>, which in Dutch (and Danish) dialects may vary from more bilabial to labiodental. We have no internal evidence for either pronunciation. Note that Kingo writes only <v> and the others <v> and <w>. Kingo's mother tongue may not distinguish /v/ and /ʋ/ or /w/ phonemically, but most Dutch varieties do.

The equivalents of Dutch consonants are given in Table 15, with examples from all four sources with three positions in words (initial, medial, final). No new phonemes seem to have been added to the inventory of Dutch, but a few have been lost.

Modern Dutch phonemes	Wold 1770	Kingo 1770	NN 1782	Barby 1800
/p/	pina 'pain', skepper 'creator', loop 'to go'	parra 'parry, deflect', hoppo 'to open, rise', loop 'to go'	pardoneer 'pardon', open 'to open', doop 'to baptise'	Patientie 'patience', kruppel 'crippled, lame', slaap 'to sleep'
/t/	tot 'until', tata 'father', niet 'not'	te 'to', tatta 'father', qvaet 'evil'	tiende 'tenth', getal 'number', sit 'to sit'	tee 'until', ketting 'chain', met 'with'
(/tɕ/)	(plantje)	(plantki)	(plantje)	**n.a.**

/k/	kom 'to come', likam 'body', buk 'book'	kom 'to come', spikker 'nail', brek 'to break'	kom 'to come', beeker 'cup', mack 'to make'	kom 'to come', beeker 'cup', maak 'to make'
/b/	buk 'book', gebet 'prayer'	bin 'to be', bobo 'up, on top of'	beeker 'cup', gebet 'prayer'	ben 'to be', naby 'near'
/d/	dag 'day', vaeder 'father'	dag 'day', fader 'father'	dag 'day', vaeder 'father'	doen 'to do', dooden 'dead people'
(/dʑ/)	**n.a.**	**n.a.**	**n.a.**	**n.a.**
(/g/)	gief 'to give'?	gebet 'prayer'?	giev 'to give'?, negen 'nine'?	God 'God'? figur 'figure'
/f/	for 'for', taefel 'table', blief 'to stay'	fan 'from, of', tafel 'table', of 'or'	for 'for', tafel 'table', veif 'five'	form 'form', liefe 'dear' loof 'praise'
/s/	soon 'son', hieso 'here', wies 'to show'	sei 'to say', mussi 'must', bees 'animal'	soo 'so', deese 'this, these', vrees 'to fear'	sondo 'sin', aangesicht 'face', wees 'to be'
(/ɕ/)	(meisje)	(meisi)	(mejsje)	**n.a.**
/x/	gief 'to give'?, maeget 'girl'?, dag 'day'?	gebet 'prayer'?, leggom 'body'?, almagtig 'omnipotent'?	giev 'to give'?, nog 'still'?, negen 'nine'?	God 'God'? figur 'figure'?, dag 'day'?
/v/	voor 'for, to', even 'equal'	voort 'word'?, vaer 'where'?, evigheit 'eternity'?, avenmael 'supper'?	van 'from, of', begraven 'burry'	vor 'for, to', aven 'evening'
/z/	**n.a.**	**n.a.**	**n.a.**	noodzaak 'necessity'
/ʑ/	**n.a.**	**n.a.**	**n.a.**	**n.a.**
/ɣ/	gief 'to give'?, hogo 'high'?, ſeg 'to say'?	gees 'spirit, ghost'? leggom 'body'?, krig 'to get, receive'?	giev 'to give'?, nog 'still'?, negen 'nine', regeer 'govern'?	God 'God'?, figur 'figure'?, dag 'day'?
/ɦ/	Heer 'Lord'	hoppo 'to open rise'	Heer 'Lord'	Heer 'Lord'
/m/	mie 'I, me, my', jammer 'pity', neem 'to take'	mi 'I, me, my', allema 'all', em 'he, she	maer 'but', hemel 'heaven', kom 'to come'	man 'man', allemal 'all', daarom 'because'

/n/	no 'not', binne 'in, inside', bin 'to be'	no 'not', binne 'in, inside', bin 'to be'	no 'not', binne 'in, inside', bin 'to be'	no 'not', binne 'in, inside', een 'one'
(/ɲ/)	**n.a.**	**n.a.**	**n.a.**	**n.a.**
/ŋ/	honger 'hunger', jong 'young'	engel 'angel', jong 'young'	honger 'hunger', lang 'long'	Jungers 'disciples', bring 'to bring'
/ʋ/ (/w/?)	wees 'to be', eewig 'eternal', nyw 'new'	vaneer 'when', evig 'eternal', skrev 'to cry', niev 'new'	wil 'will', nywe 'new'	wil 'will', gauw 'fast'
/l/	loop 'to go', jellie 'you, your', al 'all'	lop 'to go', tafel 'table', allema 'all'	loop 'to go' , alle 'all', heel 'whole'	liefe 'dear', salig 'blessed', hemel 'heaven'
/j/	ju 'you, your'	jeet 'food'	jeet 'food'	joe 'you, your'
/r/	rup 'to call', afteran 'behind', for 'for, to'	rup 'to call', veran 'again', for 'for, to'	ryst 'rest', weer-an 'again', vor 'for, to'	rooy 'red', daarom 'because', Heer 'Lord'

Table 15. Dutch consonants and their graphic representation

6.2 Vowels

While the consonants are relatively straightforward, the vowels and diphthongs are more complex. Table 16 provides our interpretation of the vowel phonemes. Given the differences between the vowels of Modern Dutch and Modern Zealandic, we base our analysis on the Zealandic variety, as VIDC was likely derived from Zealandic Dutch. We list the possible vowels and diphthongs attested in the four primers. The phoneme inventory follows that of Modern Zealandic Dutch, with sources including FAND (2005), Van Driel (2004), and Hinskens & Taeldeman (2013).

Modern Dutch phonemes	Wold 1770	Kingo 1770	NN 1782	Barby 1800
/i/	tit 'time', pina 'pine'	tidt 'time', spikker 'nail'	tid 'time', bie (prep.) 'at, by, near'	tid 'time', by 'at, by, near'
/y/	gebryk 'to use', dysent 'thousand'	yt 'out of, from, out', gebryk 'to use', dysen 'thousand'	misbryk 'to abuse', hus 'house', dyssend 'thousand'	ut 'out of, from, out', dusternis 'darkness'
/ɛ/	sin 'sense, desire', kint[1] 'child'	sin 'sense, desire', kint 'child'	sit 'to sit', kint 'child'	sin 'sense, desire', kint 'child'
/æ(.)/[2]	help 'to help', regt 'right', hel 'hell', weerelt 'world'	help 'to help', rekt 'right', helle 'hell', verel 'world'	help 'to help', regt 'right', helle 'hell', weereld 'world'	help 'to help',, recht 'right', wet 'law', werld 'world'
/œ/	skyld 'guilt'	skylt 'guilt', druk to 'press', lyst 'desire'	skyld 'guilt', lyst 'desire', onglyk 'bad luck, misfortune'	onskuld 'innocence' indruk 'impression', gluk 'luck, happiness'
/ɔ/	sorg 'to care', Godt 'God', volk 'person', ons 'we, us, our', jong 'young'	sorg 'to care', Got 'God', volk 'person', ons 'we, us, our', jong 'young'	sorg 'to care', Godt 'God', volk 'person', ons 'we, us, our', jongetje 'young, n.'	kop 'cup', God 'God', volk 'person', ons 'we, us, our', hond 'dog', jongheid 'youth'
/a/	dag 'day', dank 'thanks', plant 'plant'	dag 'day', danki 'thanks', plant 'plant'	dag 'day', dank 'thanks', plant 'plant'	dag 'day', dank 'thanks', pad 'path, way'
/i:/	dief 'thief', bedrieg 'to deceive', liefde 'love', lieve 'dear', ieder 'everyone'	dif 'thief', bedrig 'to deceive', liefde 'love', ider 'everyone'	diev 'thief', bedrieg 'deceive', lieve 'dear'	friend 'friend', liefde 'love', verdien 'to earn', liefe 'dear'
/y:/	huur 'to rent'	huur 'to rent'	huer 'to rent'	uur 'hour'

[1] Cf. FAND I, 71.

[2] (.) indicates the neutralisation of a quantity correlation.

/u(.)/	buk 'book', bluet 'blood', gut 'good', vru-vrue 'early', versukking 'temptation'	buk 'book', blut 'blood', gut 'good', sutte 'sweet'	buk 'book', blud 'blood', gut 'good', muder 'mother', ver-suking 'temptation'	boekje '(little) book', bloed 'blood', goedheid 'kindness', moe-der 'mother', ver-soeking 'temptation'
/e:/	wees 'to be', breek 'to break', leef 'to live', neem 'to take', leven 'life', tegen 'against'	ves 'to be', brek 'to break', leef 'to live', nem 'to take', evenso 'equally'	wees 'to be', brek 'to break', neem 'to take', leven 'life', tegen 'against'	wees 'to be', breek 'to break', leev 'to live', neem 'to take', regen 'rain', leevendig 'living', evenbeeld 'likeness'
/ø:/	soon[3] 'son', vo-gel[4] 'bird'	soon 'son'	soon 'son', door[5] 'through'	lugnaar 'lier', deugd 'virtue'
/o:/	over 'over', ge-booren 'born', skoolkint 'schoolchild'	over 'over', ge-boren 'born', skoolkint 'schoolchild'	over 'over', ge-booren 'born', skoolkint 'schoolchild' loov 'to praise'	over 'over', ge-booren 'born', nabovo 'up', loof 'to praise'
/ɛ:/	slaep 'to sleep', qwaet 'evil', staen 'stand', avont 'evening', sae-lig 'blessed', naem 'name', maek 'to make'	slap 'to sleep', qvaet 'evil', stan 'stand', avenmael 'sup-per', salig 'blessed', naem 'name', mak 'to make'	qwaed 'evil', staen 'stand', avondmael 'sup-per', saelig 'blessed', naem 'name', maek 'to make'	slaap 'to sleep', quaad 'evil', staan 'stand', avend 'evening', salig 'blessed', naam 'name', maak 'to make'
/eˀ/[6]	been 'leg/bone', geest 'spirit, ghost', eene 'one', tweede 'second', leer 'learn', meer 'more', eerst 'first', vrees 'to fear'	been 'leg/bone', gees 'spirit, ghost', ene 'one', tvede 'second', leer 'learn', erste 'first', frees 'to fear'	beenen 'legs/bones', geest 'spirit, ghost', eene 'one', twee 'two', leer 'learn', eer 'to honour', vrees 'to fear'	been 'leg/bone', geest 'spirit, ghost', eenigst 'only', leering 'teaching', eer 'to honour', vrees 'to fear'

[3] Frontal vowel in Zealandic (FAND II, 47).
[4] Frontal vowel in Zealandic (FAND II, 50).
[5] Frontal vowel in Zealandic (FAND II, 44).
[6] The symbol <ˀ> indicates a diphthong with schwa (/ə/) as offglide.

/oᵊ/	doot 'death', groot 'great, big'	doot 'death', groot, grooto 'great, big'	doot 'death', groot, groote 'great, big'	doot 'death', groot, 'great, big', bloot 'naked', dooden 'dead, n.pl.', rooy 'red'
/ɔː/	loop 'to walk', doop 'to baptise', gloof 'to believe', hogo 'high'	lop 'to walk', doop 'to baptise', glof 'to believe', hogo 'high'	loop 'walk', doop 'to baptise', gloov 'to believe'	koop 'to buy', hoofd 'head', gloof 'to believe'
/aⁱ/	vleis 'meat', heilig 'holy', eigen 'own'	fleis 'meat', heilig 'holy', eigen 'own'	vleis 'meat', heilig 'holy', eigen 'own'	bereid 'ready', leid 'to lead', heilig 'holy', eigendom 'property'
/aᵘ/	ouders 'parents', hou 'hold', betrou 'trust'	ouers 'parents', hou 'hold', frou 'woman, wife', hout 'wood'	how 'hold', vrow 'woman, wife'	oud 'old', koud 'kold', vrouw 'woman, wife'

Table 16. Modern Zealandic Dutch vowels and their graphic representation

A detailed analysis of the phoneme system is beyond the scope of this paper, and that will be undertaken elsewhere. However, we can notice that some of the Dutch phonemes have undergone a phonemic shift, but never consistently. For instance, the Dutch rounded front vowel /y:/ (spelled <uu> or <ue> in the primers) sometimes seems to preserve the original value, but often seems to be unrounded, as reflected in spellings with <i> and <ie>. Front rounded vowels are extremely rare in the languages of the world, and this shift from rounded to unrounded may be due to substrate influence. However, also in Zealandic dialects we may encounter unrounded vowels for standard Dutch /y:/. Some examples are given in Table 17.

Wold 1770	Kingo 1770	NN 1782	Barby 1800
-	bitten 'outside'	-	-
bik 'stomach, belly'	-	-	-
getiegen 'to testify'	getygen 'to testify'	getiegnis 'testimony'	-
(dievel 'devil')[7]	(divel 'devil')	(dievel 'devil')	(duvel 'devil')

Table 17. Words that may have undergone a sound shift from /y/ to /i/

6.3 Conclusions: phoneme inventory
Based on the graphematic evidence provided by the primers, the phoneme inventory appears largely consistent with that of Modern (Zealandic) Dutch. In terms of consonants, the voiced sibilant /z/ seems to be absent, as are the palatal consonants and affricates /ʑ/, /ɲ/, /ɕ/, /dʑ/, and /tɕ/. In terms of vowels, front rounded vowels appear to fluctuate between their original values and their unrounded counterparts. It is possible that this fluctuation reflects variation in pronunciation, or a constant pronunciation of unrounded vowels, obscured by reliance on Dutch spelling conventions.

7. Conclusions
The grammatical and graphematic comparison, along with the preliminary reconstruction of the phoneme system, leads to a number of conclusions.
-   The grammatical differences between the four primers are minor, but they differ quite significantly from both Dutch and 20th century VIDC. This suggests that they represent a reliable source of some variety of the language, rather than a Dutchified version of that vernacular.
-   The four primers could have been produced independently from one another. All four have chosen a different spelling system, whereby Barby is clearly inspired by contemporary Dutch writing conventions.
-   From a graphematic perspective, Barby and Kingo represent two extremes on a spectrum: Barby aligns more with Dutch spelling norms

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[7] In this case, the unrounded vowel may be originally Dutch/Zealandic (see *duivel*, in: Zoekresultaten (etymologiebank.nl), whereas the Dutch equivalents of *bitten*, *bik*, and *getiegen/getygen/getiegnis* have rounded vowels in Dutch/Zealandic (for *bitten* and *bik*, cf. FAND II, 68–69).

and shows minimal Danish influence, while Kingo exhibits stronger Danish influence with less adherence to Dutch spelling conventions.
- The choice for a spelling system is independent of the nature of the grammatical features. Whereas Barby is indistinguishable from the other primers when grammatical features are concerned, as for the spelling, based on the graphematic analysis, it is the most deviant of all. This suggests that the choice of a more Dutch-oriented orthography, as the author of Barby has chosen, is independent of the choice of grammatical constructions.
- Just on the basis of these writing samples, it is a challenge to reconstruct the phonemic system of VIDC of the time. On the one hand, some Dutch speech sounds seem to maintain their original value in some cases, but elsewhere they are adjusted. This is especially the case for the front rounded vowels. This may indicate free variation, or an occasional adjustment to Dutch spelling norms.
- The results confirm earlier observations that the variety used by Kingo is closest to the 20th century vernacular, compared to the other primers.

The selected features and methods will be applied in future studies based on wider data sets from the life cycle of this fascinating Creole language, documented over a period of 250 year, incorporating both religious and vernacular texts.

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Appendix: The five ABC books in chronological order, with links
1770, St. Croix:
Kingo, Johan Christopher Kørbitz Thomsen. 1770. *Kreool A, B, buk. Door J.C. Kingo. St. Thomas na Amerika d. 7. Julii 1770. [Di ka druk na Mester Daniel Thibou na St. Croix, 1770.]* St. Croix: Daniel Thibou. 16 pp. https://www.kb.dk/e-mat/dod/130020226723_bw.pdf

1770, St. John:
Wold, Erich Röring. 1770. *Creool A B Buk voor die Deen Missioon na Westindien. [ka skrief door Erich Röring Wold, Catechet na St. Jans. 1770.]*; unkn.pl.: unkn.pub. 16 pp. https://www.kb.dk/e-mat/dod/130021921883_bw.pdf

1782, Denmark(?):
Anonymous. 1782. *A, B, C, ...* 16 pp.
(Royal Library Copenhagen, 47-348 8º)

1800, Barby, Germany:
A B C-BOEKJE voor die Neger-Kinders na St. Thomas, St. Croix en St. Jan. 12 numbered pages. https://archive.mpi.nl/tla/islandora/object/tla:1839_00_0000_0000_0018_A63D_C?asOfDateTime=2018-03-02T11:00:00.000Z

1825, Gnadau, Germany:
ABC-BOEKJE voor die Negerkinders na St. Thomas, St. Croix en St. Jan. 12 numbered pages. https://babel.hathitrust.org/cgi/pt?id=uc1.b4766453&view=1up&seq=19