

Transparency and Language Contact: the Case of Haitian Creole, French and Fongbe¹

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When communicating, speakers map meaning onto form. It would thus seem obvious for languages to show a one-to-one correspondence between meaning and form, but this is often not the case. This perfect mapping, i.e. transparency, is indeed continuously violated in natural languages, giving rise to zero-to-one, one-to-many and many-to-one opaque correspondences between meaning and form. However, transparency is a mutating feature, which can be influenced by language contact. In this scenario languages tend to evolve and lose some of their opaque features, becoming more transparent. This study investigates transparency in a very specific contact situation, namely that of a creole, Haitian Creole, and its sub- and superstrate languages, Fongbe and French, within the Functional Discourse Grammar framework. We predict Haitian Creole to be more transparent than French and Fongbe and investigate twenty opacity features, divided into four categories, namely Redundancy (one-to-many), Fusion (many-to-one), Discontinuity (one meaning is split in two or more forms) and Form-based Form (forms with no semantic counterpart: zero-to-one). The results indeed prove our prediction to be borne out: Haitian Creole only presents four opacity features out of twenty, while French presents nineteen and Fongbe nine. Furthermore, the opacity features of Haitian Creole are also present in the other two languages.

1 Introduction

When communicating, speakers map meaning into form. It would thus be expected for languages to show a one-to-one correspondence between meaning and form. Nevertheless, this is often not the case. This transparency principle is continuously violated in natural languages, giving rise to redundancy and reduced forms for example. To our knowledge no fully transparent language

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exists, since to some extent, they all somehow violate this ideal one-to-one correspondence. Languages, however, can have different degrees of transparency and violate it in different ways. The present study is on transparency in Haitian Creole and its superstrate language, French, and its substrate language, Fongbe, within the Functional Discourse Grammar (FDG) framework. Transparency is an important topic and has a great impact on the subfields of theoretical linguistic, language contact, diachronic variation and language acquisition. This research deals with all of them, but more specifically with the former two and aims at theoretically analysing transparency in a specific language contact context, namely that of a creole.

The paper is organized as follows. Section 2 defines the concept of transparency and its definition within FDG (2.1 and 2.2). The last subsection (2.3) explains the relation between creoles and transparency and outlines the hypothesis and prediction. Section 3 presents the methodology, introducing and explaining all non-transparent features investigated in the study, while Section 4 outlines the results. Section 5 concludes the paper.

2 Transparency

Over the years transparency has been defined in different ways. For this research we will make reference to Hengeveld's (2011) definition of transparency as a one-to-one correspondence between meaning and form. However, we first need to clarify what transparency is *not* but is often defined as: absolute simplicity, ease of acquisition and iconicity.

Absolute simplicity is the simplicity of a language system as such, that is the amount of form (surface simplicity) and the levels of embedding (structural simplicity) needed to express any meaning (Miestamo 2006). The more linguistic material needed and the more layered its structure, the more complex the language. Another type of simplicity is relative simplicity, as defined by Miestamo (2006), or ease of acquisition. According to this definition, the easier it is for L2 learners to acquire a language, the simpler it is (Kusters 2003). Iconicity, on the other hand, is the predictability of the meaning of a certain word from its form (McWhorter 1998). The relation between the form and the meaning of a word is mostly arbitrary, except for onomatopoeia. The matter becomes slightly more complicated when looking at compounds and derivations. A compound or a derived word is iconic if its meaning can be predicted on the basis of the meaning of the single forms. As the above descriptions suggest, all these concepts have something in common with each other and with transparency, but they should not be confused. Transparency is an interface property between two levels, meaning and form, and not an intrinsic property of the language.

Transparency is interesting for different linguistic subfields, namely diachronic change, language acquisition and language contact. As far as diachronic change is concerned, Hengeveld (2011b) and Seuren & Wekker (1986) have argued that languages start out with transparent features that over time tend to become more opaque. These forms that evolve and lose their function, e.g. grammatical gender, have been defined as 'historical junk' and 'male nipples' (Lass 1997: 309). A typological study conducted by Leufkens (2015) shows that, although languages differ greatly in their degrees of transparency, the variation between them is not random. From her data, Leufkens (2015) drew up the implicational hierarchy in (1), which mirrors the diachronic change: languages start out transparent (to some degree) and then slowly acquire the opaque features in (1) in a bottom up way. The hierarchy is thereby implicational in the sense that the presence of a certain feature in a language implies the presence of all features lower in the hierarchy.

- (1) nominal expletives, clausal agreement
 -
 - grammatical gender, tense copying
 -
 - suppletion
 -
 - phrasal agreement, irregular stem formation
 -
 - predominant head-marking
 -
 - morphophonologically conditioned stem alternation
 -
 - morphologically and morphophonologically conditioned affix alternation
 -
 - redundant referential marking, phonologically conditioned stem and affix alternation, grammatical relations

However, this is the only situation in which a change in this direction can be witnessed. In both L2 acquisition and in language contact the tendency is in fact towards more transparency. Lupyan & Dale (2010) found that languages spoken in isolated communities have more opaque features, such as fusional morphology, showing that diachronic change can be reinforced by linguistic isolation. The second challenge to opacity concerns learnability. It has been shown that the more opaque a language is, the more difficult it is to acquire, especially for L2 learners (Leufkens 2013). In fact, the more L2 learners a language has, the more it will lean towards losing certain opaque features

(Kusters 2003). Slobin (1977) and Lightfoot (1979) argue that there is an 'opacity ceiling'. The ceiling is a learnability limit: if a feature crosses this limit, it will get lost. This prevents languages from becoming too opaque and therefore a burden to learners. The only possible way for an opaque system to be learned is if enough evidence is provided, like in the case of grammatical gender in German (Audring 2009). The next section will outline the framework used in this research, namely Functional Discourse Grammar, and its importance for the investigation of transparency.

2.1 *FDG*

Functional Discourse Grammar is a linguistic theory developed by Hengeveld & Mackenzie (2008) following up on Dik's (1978) Functional Grammar model. The former, as opposed to the latter, is a structural-functional framework that aims at finding explanations for the structures of human language but that does so in the communicative function of the language. FDG sees the communicative intentions of a speaker as the starting point of the speech act. It is a top-down model of linguistic organization, forming the intention to the phonetic (or orthographic) form. In FDG a Grammatical Component interacts with three other non-grammatical components: the Conceptual, Contextual and Output Components. The Conceptual Component is where the intention is formed, the Output Component where the message is articulated, while the Contextual Component contains knowledge about the speech context. Within the Grammatical Component, the speaker's intention first goes through a Formulation process, which translates it into pragmatic (at the Interpersonal Level) and semantic (at the Representational Level) units. These two levels, like all levels in FDG, are hierarchically ordered. Afterwards these units go through a Morphosyntactic Encoding process, which transforms them into morphosyntactic units landing at the Morphosyntactic Level. The last transfer is through Phonological Encoding, a process that converts them into phonological units ending up at the Phonological Level. These grammatically complete units are then passed on to the Output Component to be written, signed or pronounced. It is not obligatory for an intention to go through all the processes and levels. In some cases an intention can go directly from the Conceptual Component to the IL and then on to the PL, as in the case of *Ouch!*, which has no semantic or morphosyntactic counterpart. In other words, all four levels are independent but they all interact with each other. Figure 1 below is a representation of the general architecture of FDG. Processes are represented by ovals, and levels by rectangles.

Every level has its own hierarchical internal structure, but this will not be discussed here, since it is not relevant for the goals of the present research. The following section defines transparency within FDG.

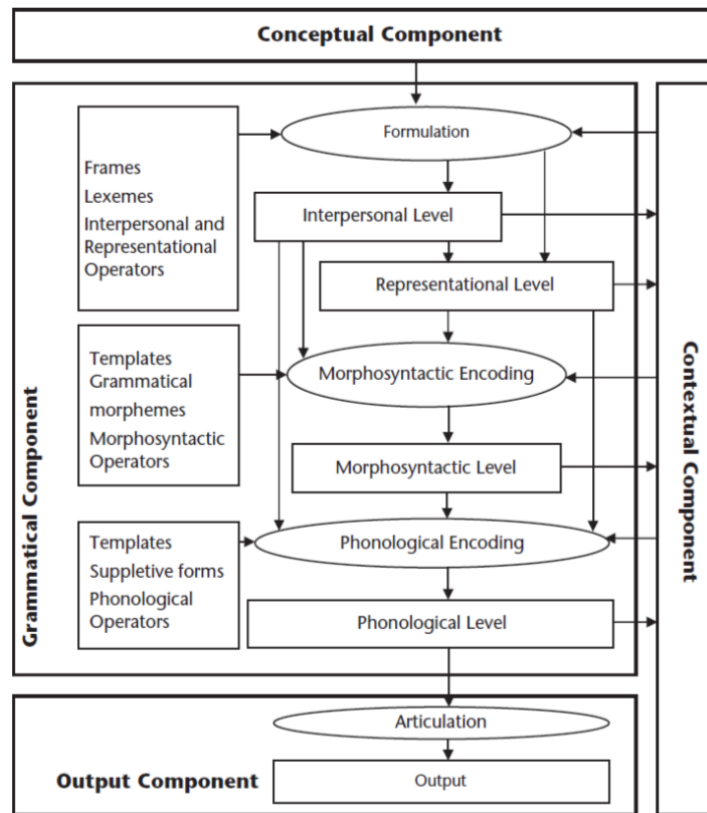


Figure 1: General architecture of FDG (Hengeveld 2011a: 4)

2.2 Transparency in FDG

As outlined above, transparency can be defined as an ideal one-to-one correspondence between meaning and form: all non-transparent correspondences can be defined as opaque. FDG can be exploited to make this definition more precise. In this framework, a unit of meaning is a unit, which is a primitive, at either the RL or IL, while a unit of form is a primitive at the two lower levels, ML or PL. This would lead to the following definition (from Leufkens 2015: 13):

- (1a) Transparency is obtained when one unit at one of the upper two levels of linguistic organization (IL, RL) corresponds to one unit at one of the lower two levels of linguistic organization (ML, PL).

It is important to notice once more that transparency is not a property of the level itself, but of the relation between levels, as an interface property. From this perspective this definition is not precise enough. In the Grammatical Component

there are four levels, but in a) only the relations between the two upper levels on the one hand and the two lower ones on the other (IL/RL-ML/PL) are considered, whereas there are also relations between the two 'meaning' and the two 'form' levels themselves. There are in fact six interfaces between the four levels, namely IL-RL, IL-ML, IL-PL, RL-ML, RL- PL, ML-PL and there might be opacity in all six of them. Following from this, transparency can thus be defined as the one-to-one correspondence of linguistic units between the four levels (Leufkens 2015: 13):

- (1b) Transparency is obtained when one unit at one level of linguistic organization corresponds to one unit at all other levels of organization.

This definition may seem less specific than the one in (1a) above, but it is more precise as it reflects the complexity of the language interfaces. As outlined in Section 1 above, all languages are somehow opaque and they differ from one another with regard to their degree of transparency. The latter must not be seen as a binary feature though, but as a spectrum: a language can be more or less transparent and its transparency degree may be different for the six different interfaces.

2.3 Transparency and creoles

Creoles have been defined in many ways. According to Hall (1966), a creole language is a natural language that has developed from a pidgin, a simplified language having emerged in a specific contact situation, namely between two groups that do not have a language in common. The pidgin is then nativized by the following generation, which results in a fully developed language, both semantically and grammatically. The most common situation in which we find such developments is the eighteenth and nineteenth centuries' colonization, due to the Atlantic slave trade (Mufwene 2015). All such creoles are based on European languages, such as Dutch, French, English and Portuguese. The latter are called the superstrate languages, which came into contact with substrate languages spoken by enslaved people, e.g. Fongbe. However, defining creoles is not as easy as it may seem. According to Arends et al. (1995), the distinction between creoles and non-creoles is mostly historical, while according to other researchers, such as McWhorter (1998) and Bakker et al. (2011), they also differ in their grammars in a consistent way. For the present study we will follow the definition of Arends et al. (1995) and consider a creole as a language that arose in a contact situation during the colonial period, in this specific case in the European colonies in the Caribbean. As far as the grammar of such languages is concerned, we will not pursue this topic any further and only focus on

transparency.

Contact situations are extremely interesting with regard to transparency and, given the absence of any common language for communication purposes, creole languages are even more interesting in this respect. This kind of situation forces speakers to make their language as clear, simple and understandable as possible (Leufkens 2013). This goal can be reached in two ways. The first is economy: speakers try to use as little material as possible in order to express a certain meaning, which results in the use of reduced forms. The second is intelligibility, that is the need to be understood, which leads to the use of forms that are as easy as possible to perceive, namely more intelligible. This results in the avoidance of reduced forms and, as a consequence, in increased transparency. The choice between the two means is partly based on motivation, e.g. the speaker needs to be quick and efficient in his requests, and partly on the typological distance between the languages. As far as the motivation is concerned, more transparency is expected in those situations in which communication is necessary, such as in trade, and not in those in which both speakers have time to learn a common language in order to interact. Typological distance is also extremely important: the more distant the sub- and superstrate languages are, the more transparent the creole will be (Leufkens 2013). For creoles originating in the colonial period, this is always the case, therefore both points are important when dealing with such contact situations. Finally, there is another factor that needs to be considered, namely time. As mentioned above, in the absence of contact, languages become more opaque over time. Colonial creoles are young and therefore expected to be more transparent than the older languages they originated from.

A previous study by Leufkens (2013) on the transparency of four creoles (Nubi, Pichi, Sri Lanka Malay and Diu Indo-Portuguese) showed that, even though they all exhibit some opaque structures, they are more transparent than the languages they originated from. She also found no evidence for the so-called form-based forms in creoles, that is, linguistic elements that are not semantically or pragmatically motivated, such as nominal expletives. The languages we investigated are Haitian Creole, its superstrate language French and the substrate Fongbe. Two aspects need to be considered. First, Haitian Creole originated in the colonial period, in the fields and in a context of slavery. Moreover, French and Fongbe are typologically quite distant. The nature and history of the languages and the previous literature lead to the prediction that Haitian Creole is more transparent than its super- and substrate languages French and Fongbe. This prediction is investigated in the current paper. The next section will outline the methodology and describe the features investigated in detail.

3 Methodology

For the present study the research was conducted in a different way for each of the three languages involved. The French data were discussed with a colleague and native speaker of Parisian French, who agreed to be consulted as an informant. The data from Haitian Creole are based on DeGraff (2001), Hall (1953), Lefebvre et al. (1982) and Glaude (2012). For Fongbe, on the other hand, reference was made to the dataset created by Leufkens (2015)² and based on Lefebvre & Brousseau (2002) and Höftmann (1993). Table 1 below summarizes all references.

Table 1: Overview of references

Language	Reference
French	Native speaker consultant
Haitian Creole	DeGraff, M. 2001. Kreyòl Ayisien, in <i>Comparative Creole Syntax, Parallel Outlines of 18 Creole Grammars</i> , ed. John Holm and Peter L Patrick, Westminster Creolistics Series 7; Glaude, H. 2012. <i>Aspects de la syntaxe de l'Haïtien</i> , Anibwé, Paris; Hal, Robert A. 1953. <i>Haitian Creole: Grammar, Text, Vocabulary</i> , The American Anthropology Association, Vol. 55, No. 2; Lefebvre C., Magliore-Holly, H. & Piou, N. 1982. <i>Syntaxe de l'Haïtien</i> . Karoma Publishers INC., USA;
Fongbe	Lefebvre & Brousseau (2002) <i>A Grammar of Fongbe</i> , Berlin Mouton de Gruyter; Höftmann (1993) <i>Grammatik des Fon</i> , Langenscheidt. Database http://transparency.humanities.uva.nl/

The core method has been to consult the aforementioned grammars in order to attest the presence or absence of opaque features from the list presented in the next subsections. For the aim of this study we considered one example of opacity for a certain feature as sufficient evidence to define that feature as opaque (+ value). If no evidence was found that language has been considered transparent with regard to that feature (– value). Note that we decided to count for opaque rather than transparent features because of our decision to consider one instance as enough evidence for opacity. In case there was no literature available on that particular phenomenon then the value No Data (ND) was assigned. The features have been divided into four subgroups, namely Redundancy, Discontinuity, Fusion and Form-based Form.

² The database is available at <http://transparency.humanities.uva.nl/>.

3.1 Redundancy

This category includes all one-to-many relations at different linguistic levels, namely one pragmatic, semantic or morphosyntactic unit that corresponds to more than one semantic, morphosyntactic or phonological units. The redundant opacity features investigated in this research are the following: Clausal Agreement, Cross-Reference, Phrasal Agreement, Plural Concord, Negative Concord, and Tense Copying.

3.1.1 Clausal Agreement and Cross-Reference

Agreement is a morphosyntactic operation in which a semantic or grammatical property of one unit, also called the controller, is expressed on some other unit, which can be defined as the target. Agreement can be found in different contexts, but the phrase is definitely the most canonical (Corbett 2006), followed by the clause, where the predicate agrees with its arguments. In FDG agreement is seen as a purely morphosyntactic operation, happening at the ML, which copies some features of one unit onto another. The copy is thereby semantically empty. FDG, however, distinguishes Agreement from what it calls Cross-Reference, namely multiple expressions of one semantic unit. Distinguishing between these two types of agreement is not so easy, but Hengeveld & Mackenzie (2008) propose a rule of thumb. If an element can occur on its own, it cannot be a copy, therefore we have Agreement only when both units at ML are obligatory, as in French (2), as opposed to Italian (3):

- | | | | | | |
|-----|-------------------------|-------------|----------|----------------|-----------------|
| (2) | Je | viens | demain. | *Viens demain. | Agreement |
| | 1sg.NOM | comePRS.1SG | tomorrow | | |
| (3) | Io | vengo | domani. | Vengo domani. | Cross-Reference |
| | 1sg.NOM | comePRS.1SG | tomorrow | | |
| | 'I am coming tomorrow.' | | | | |

3.1.2 Phrasal Agreement

Phrasal Agreement is the agreement between a noun and its modifiers, determiners and demonstratives. The latter can agree with the former in number, gender, case and definiteness. Italian is extremely opaque in this respect, since it always requires the targets to agree with the controller in both gender and number, as example (4) below shows:

- (4) Quell-a bell-a bambin-a biond-a rid-e.
 DEM.SG-F pretty-SG.F little_girl-SG.F blond-SG.F laugh-IND.PRS.3SG
 ‘That pretty blond little girl laughs.’

Phrasal Agreement

3.1.3 *Concord*

The term concord refers to situations in which one semantic meaning is expressed by both a morphosyntactic and a lexical unit. There are three types of concord, namely plural, negative and temporal concord. As far as the former is concerned, number can be expressed lexically, that is by the use of a numeral or a quantifier, and morphologically, by means of a plural morpheme. Some languages, however, use both, as in the English phrase *two cars*, where the plural is expressed twice, namely by *two* and by the morpheme *-s*, which clearly leads to opacity. A similar redundancy can be seen with negation. Negation can be expressed lexically, by means of adverbs (e.g. *never*), quantifiers and pronouns (e.g. *nobody*), and morphologically, by means of inflection or a free grammatical morpheme. Moreover, in certain languages (like English), there are also other negative elements, that is Negative Polarity Items (NPI). NPI's, like *anyone*, are not semantically independent, which means that they can only be used in the presence of another negative item, as in *I haven't seen anyone*. Logically the coexistence of two full (that is no NPI's) negative items should result in a positive reading, which is what happens in languages like English (5a). Russian, on the other hand, is a negative concord language: two negations have a negative reading (5b), which is redundant, thereby opaque.

- (5) a. Nobody read the book.
 (5) b. Nikto ne chita-l knigu.
 Nobody NEG read-PST.PFV.SG bookACC.F
 ‘Nobody read the book.’

Negative Concord

Temporal concord is very common and is the result of the cooccurrence of both a morphosyntactic tense marker and a temporal adverb, as in the sentence *Yesterday I studied chemistry*. As Leufkens (2015) clearly points out, these opacity features are nearly universal. They are however extremely similar and therefore will be grouped together under the category Concord.

3.1.4 *Tense Copying*

The last redundancy feature we considered is Tense Copying, a multiple marking of time reference in a main and its subordinate clauses, also known as *consecutio temporum*. This copying mechanism is a morphosyntactic process that copies the tense value of the tense operator of the main clause to its

subordinates. French is opaque in this respect: tense copying is obligatory (6a). Languages like Russian, on the other hand, do not require it and therefore the tense in the embedded clause is a relative tense, that is relative to the time of the utterance (6b):

- (6) a. Marie a dit qu' elle lisait
 Marie have_{IND.PRS.3SG} said_{PST.PART} COMP NOM.SG.F read_{IND.PST.3SG}
 b. Maria skaza-l-a čto ona chita-et.
 Maria.NOM say-PST.PFV.SG-F COMP NOM.3SG.F read-PRS.PFV.3SG
 'Mary said that she was reading.' Tense Copying

Tense copying is opaque, since the tense marking is a morphosyntactic process that is not semantically or pragmatically motivated.

3.2 *Discontinuity*

Discontinuity is another one-to-many correspondence and groups together all cases in which one pragmatic or semantic unit is split-up into two or more morphological or phonological units. The discontinuity features investigated in this research are the following: Extraposition and Extraction, Raising, Circumfixes and Circumpositions, Infixes and Non-Parallel Alignment.

3.2.1 *Extraposition and/or Extraction*

Elements that belong together at the IL and RL can sometimes be separated at the ML. This is the result, for example, of a modifier being separated from its head and moved to the right periphery of the sentence, Extraposition, or to the left periphery, Extraction. The former is often resorted to when an element is too complex and therefore preferred at the end of the sentence, or when it is focalized, while the latter is usually the result of topicalization. The English examples below show the difference between the two phenomena (Van de Velde 2012: 433). They are both considered opaque.

- (7) a. We have several important books about global warming in stock.
 b. We have several important books in stock [about global warming].
 Extraposition
 c. [About global warming] we have several important books in stock.
 Extraction

3.2.2 *Raising*

In certain cases, an argument semantically belonging to an embedded sentence can syntactically behave as an argument of the main clause (Leufkens 2015). In

languages like English, raising is restricted to verbs like *seem* and *appear*. Two examples of a sentence before and after raising are reported in (8) below. Raising is clearly opaque, because the predicate and its arguments form a single unit at RL.

- | | | | |
|-----|----|-----------------------------------|------------|
| (8) | a. | It seems that the kids are tired. | No Raising |
| | b. | The kids seem (to be) tired. | Raising |

3.2.3 *Circumfixes and Circumpositions*

Circumfixes are affixes, therefore one unit at the IL and RL, that are realized as two separate phonological units. Circumpositions, whose only difference is that they are freestanding words rather than affixes, are mostly found in isolating languages. An example of the former is the morphological marker of the past participle in German, e.g. *ge-wuss-t* 'known'. The French negation *ne...pas*, on the other hand, is an example of Circumpositions.

3.2.4 *Infixes*

The opposite of a Circumfix is an Infix, namely an affix which is inserted into a morphological unit. They are not discontinuous but they create discontinuity in the unit they are inserted in, as the causative marker $\langle [(o)?] \rangle$ or $\langle [(o)^?b] \rangle$ in Kharia. The word *botoŋ* 'fear' is made causative by infixing the causative marker: *bo?toŋ* 'scare' (Peterson 2011: 231).

3.2.5 *Non-Parallel Alignment*

We define as Non-Parallel Alignment the non-parallelism between the ML and the PL. In order to be transparent the relationship should be parallel, but often this is not the case, as the Dutch example below shows:

- | | | | | |
|-----|-------------------------|---------|----------|------------------------|
| (9) | Ik wou | dat hij | kwam. | |
| | /kvau | dati | kvam/ | |
| | I want.PST | COMP he | come.PST | |
| | ‘I wish he would come.’ | | | Non-Parallel Alignment |

In (9) above, *ik* and *wou*, that are distinct units at the IL and RL, correspond to a single unit at PL, and so do *dat* and *hij*. This non-parallelism is clearly opaque.

3.3 *Fusion*

Besides one-to-many languages also largely show many-to-one correspondences. These transparency violations are called Fusion, because two

or more units on one level correspond to one single unit at another level. The fusion features investigated in this research are the following: Cumulation of TAME and Case and Morphologically Conditioned Stem Alternation: Suppletion and Irregular Stem Formation.

3.3.1 Cumulation of TAME and Case

Cumulation is the expression of multiple meanings in a single grammatical unit, such as an Affix or a Grammatical Word (Hengeveld 2007), which becomes then a 'portmanteau morph' (Bauer 2003: 19). Cumulation is very common in fusional languages, like Italian, where the morpheme *-o* in *parl-o* 'speak-IND.PRS.PFV.1SG' encodes tense, aspect, person and number. There are, however, certain semantic categories that are very commonly expressed by portmanteau morphs. The first is the cumulation of gender and number, which are very often fused together. The second is case, which is often fused with gender and number, as in *-orum*, the genitive plural morpheme (for nouns) of the second declension in Latin. The last very common category of portmanteau morpheme is that of Tense, Aspect, Mood and Evidentiality (TAME), as in the Italian form *parl-o*. Cumulation is of course non-transparent and these two semantic categories will be of interest in our study.

3.3.2 Morphologically-Conditioned Stem Alternation: Suppletion

In order to express grammatical information, languages may recur to affixation, i.e. adding an affix to a stem, or to a change in the stem. There are two possible changes and one of them is called Suppletion. This name refers to a morphological process, during which the marking of specific information requires a stem which is not derivable from other stem forms of the same Lexeme (Bauer 2003: 48; Hengeveld 2007: 39). French is opaque in this respect and shows Suppletion (10): the stem does not only have a lexical meaning but it also encodes aspect and tense (Bauer 2003).

(10)	Je vais	J'allais	J'irai	
	'I am going.'	'I went.'	'I will go.'	Suppletion

3.3.3 Morphologically-Conditioned Stem Alternation: Irregular Stem Formation

The marking of grammatical information can also be expressed by Irregular Stem Formation, namely a modification of part of the stem. This type of modification, however, is purely morphological and has to be distinct from the morphophonologically driven ones which will be discussed later. According to

Other languages base their alignment on semantic functions, therefore exhibiting representational alignment. There are two kind of alignment based on semantic functions. The first type of representational alignment is hierarchical and based on animacy and person. The second one marks their arguments for the categories of Actor, Undergoer and Location (Hengeveld & Mackenzie 2008), which we find in Acehnese. In the latter, arguments are expressed through the use of clitics depending on semantic roles, i.e. =*geuh* for Undergoer and =*geu* for Actor, see the example in (12) (from Durie 1985).

- (12) gopnyan galak=geuh that
3.HON happy=3.HON.U very
'He is very happy. Representational Alignment

Finally another group of languages ignores any pragmatic and semantic role of the arguments and presents a purely morphosyntactic alignment which, as opposed to the previous ones, is opaque. In FDG it has been defined as Grammatical Relations or Syntactic Functions and belongs to the Form-based Form category because the marking at the ML has no counterpart at the IL and RL, leading to a zero-to-one relation between levels. English, for example, shows Grammatical Relations. Example (13) illustrates that the alignment of the arguments in the clause is driven by their syntactic roles: *he* is the grammatical subject and therefore occurs in preverbal position.

- (13) a. He eats an apple.
b. He falls.
c. He was chased by the dog. Syntactic Alignment

3.4.3 Nominal Expletives

Nominal Expletives, also known as dummy subjects, are units needed at the ML that do not have any counterpart at the IL and RL and therefore opaque. Dummy subjects are mostly found in existential and weather predicates and non-raised constructions, like in the English sentences *It is snowing*, *There is a dog in the garden* and *It seems that John is tired*. Both verbs *to snow*, *to be* (in the sense of existing) and *to seem* need a placeholder, either because the verbs have a zero argument structure or because the subject, in this case *a dog* and *John is tired*, do not precede like usual but follow the verb. Other languages, though, do not require Nominal Expletives, like Fongbe, see the example in (14) (from Lefebvre & Brousseau 2002: 245).

- (14) jì jà
 rain fall
 'It is raining.'

Nominal Expletives Absent

Leufkens (2015) only considered Nominal Expletives in weather predicates and excluded the ones in non-raised constructions because these are much less opaque. She claims that the latter in fact have a semantic counterpart, namely the subordinate clause. We however believe that they are not less opaque but rather belong to another category, that is Discontinuity, because one single semantic unit is split into two units at ML.

3.4.4 *Influence of Complexity in Word Order or Heavy Shift*

In FDG the placement of constituents in the sentence is considered to be driven by semantic and pragmatic status. This can, however, be overruled by the complexity of constituent: if a certain constituent is morphosyntactically complex, it can be at the end of the sentence (FDG does not allow for movement, therefore it cannot be said to be moved). The most common instances of Heavy Shift are NP shift, possessive phrases and relative clauses, as in the English sentence *Yesterday I saw at work the girl with really long red hair*. This is obviously non-transparent, since the position of *the girl with really long red hair* is morphosyntactically motivated.

3.4.5 *Predominantly Head Marking*

Grammatical information can be marked by means of affixes, which are head marking, or clitics and free-standing function markers, which are phrase marking. The former are opaque, because it is the class or complexity of the host which defines the nature of the affix, which causes a zero-to-one correspondence between the RL and the ML. The latter two, however, are more transparent because they are not defined by the class or complexity of the host. For this feature it is impossible to set a plus/minus value, therefore we looked at what tendency the language predominantly has.

3.4.6 *Morphophonologically-Conditioned Stem Alternation*

As discussed above in the Fusion subgroup, stems may undergo changes when a morpheme is added to them. Changes may be due to semantic or pragmatic reasons, like in Suppletion, or to pure morphosyntactic reasons, resulting in a zero-to-one relation between RL and ML. In Hungarian, for example, when adding the imperative morpheme *-s*, the final *-t* of the stem of the verb *köt-* 'tie' becomes *-š* as in *köš-s* 'tie!'

3.4.7 Morpho(phono)logically-Conditioned Affix Alternation or Conjugation and Declension

Just like stems, affixes can undergo mutations when being added to certain stems due to phonological morpho(phono)logical reasons. This is an exclusive phenomenon and only applies to certain affixes. An example of this can be found in West Greenlandic, where the truncating affix *-lin* 'begin' deletes the final consonant of the word it attaches to *sinic-* 'sleep', as in *sini-lin-puq* 'sleep-begin-3sg' (Leufkens 2015). There are however other types of affix alternations, which are lexically driven by conjugation or declension classes and again only apply to some affixes. We speak of conjugation when the affix mutates based on the class of the verb it attaches to, while we define declension as its nominal equivalent. An example of the latter comes from Latin, in which nouns are arbitrarily, i.e. lexically and not semantically, divided in five classes and every class requires a specific affix paradigm, as illustrated in Table 2 below for the second class for the neuter word *bellum* 'war'.

Table 2: The Latin declension for the second noun class

Nominative	bell- um	bell- a
Genitive	bell- i	bell- orum
Dative	bell- o	bell- is
Accusative	bell- um	bell- a
Vocative	bell- um	bell- a
Ablative	bell- o	bell- is

This alternation is clearly opaque, since it is purely phonologically (in some case they may be a thematic vowel indicating the class the word belongs to) or morphologically driven and has no semantic motivation.

3.5 Summary of all transparency features

Before starting to analyse the results, we propose a summary of all the transparency features investigated in this study.

Table 3: Summary of all transparency features

Feature	Transparent Value	Opaque Value
Redundancy		
Clausal Agreement	Absent	Present
Cross-Reference	Absent	Present
Phrasal Agreement	Absent	Present
Concord	Absent	Optional or Obligatory
Tense Copying	Absent	Present
Discontinuity		
Extraposition and Extraction	Absent	Present
Raising	Absent	Present
Circumfixes and Circumpositions	Absent	Present
Infixes	Absent	Present
Non-Parallel Alignment	Absent	Present
Raising Nominal Expletives	Absent	Present
Fusion		
Cumulation of TAME and Case	Absent	Present
Morphologically Conditioned Stem Alternation: Suppletion	Absent	Present
Morphologically Conditioned Stem Alternation: Irregular Stem Formation	Absent	Present
Form-based Form		
Grammatical Gender	Absent	Present
Syntactic Alignment	Absent	Present
Nominal Expletives	Absent	Present
Influence of Complexity in Word Order or Heavy Shift	Absent	Present
Predominantly Head Marking	Mostly phrase marking	Mostly head marking
Morphophonologically-Conditioned Stem Alternation	Absent	Present
Morphologically-Conditioned Affix Alternation & Conjugation/Declension	Absent	Present

4 Results

In the present section the results are presented, divided by groups of features. Examples are reported only when the three languages differ from each other; the

full set of data can also be found at <http://transparency.humanities.uva.nl/>, to which the reader can refer for a full overview of the findings. Before presenting our results, however, an important note is to be mentioned about French, namely the difference between the spoken and the written language. The orthography of French is highly opaque and therefore there may be differences between the two varieties with regard to opacity features too. Since the French we are interested in is clearly the spoken one, we reported examples in which the opacity is noticeable in the spoken language, neglecting those in which the opacity is only visible in the written variety.

4.1 Redundancy

As far as the redundancy features are concerned, Concord seems to be the only one present in all languages. With respect to the others, they all behave differently. Clausal Agreement is present in French and it is obligatory. It cannot be Cross-Reference, because the target cannot be left out:

- (15) **Nous** mangea-**ons** des pomme-s. / *Mangea**ons** des pommes.
 1PL eat-IND.PRS-1PL DET.PL apple-PL
 ‘We eat apples.’ French

On the other hand, neither Fongbe, see the example in (16a) (from Lefebvre & Brousseau 2002: 247), nor Haitian Creole, see the example in (16b) (from Lefebvre 1982: 122), present either of them:

- (16) a. kòkú xò àsíba Fongbe
 Koku hit Asiba
 ‘Koku hits Asiba.’
 b. M tande Jan vini. Haitian Creole
 1SG hear Jean come
 ‘I hear Jean coming.’

The same relation holds for Phrasal Agreement. It is obligatory in French, where the noun and its determiners, quantifiers, demonstratives and adjectives are both marked with gender and number (17a). In the French example, the liaison is visible: the plural marker is spelled out as part of the following words, making the agreement noticeable. Fongbe (17b) (Lefebvre & Brousseau 2002: 51) and Haitian Creole (17c) (Glaude 2012: 325) do not have Phrasal Agreement:

- (17) a. **Les** **autre-s** **arbre-s.**
 DET.PL.F other-PL tree-PL
 ‘The other trees.’ French
- b. **dìdè** **dàgbè** **kòkú** **tòn** **ó** **lé.**
 sketch good Koku GEN DET PL
 ‘Koku’s good sketches.’ Fongbe
- c. **Gen** **yon** **jè** **rapè** **ayisyen.**
 Have DET young rapper haitian
 ‘There is a young haitian rapper.’ Haitian Creole

Finally, tense copying is present in French, as the tense of the subordinate clause in (18) below shows.

- (18) **Marie a dit qu' elle dans-ait.** French
 Marie AUX sayPST.PRT COMP 3SG dance-PST
 ‘Mary has said that she was dancing.’

Unfortunately, no Fongbe examples have been found, but in Gungbe, which is closely related to Fongbe in this respect, there is no such morphosyntactic process. In example (19) (Aboh, personal communication), there is a future tense marker in the main clause, but no such marker is present in the embedded clause.

- (19) **jó kèkè ló dó, é má nyín món sùrù ná dè mí Ø**
 leave bike DET at if NEG COP that_way S. FUT say we NFUT
 hèn kèkè émìtòn gle
 hold bike his break
 ‘Don’t play with the bike, otherwise Suru will say that we caused the bike to break down.’ Gungbe

Haitian Creole also does not have any copying process of tense from the main to the subordinate clause. Anteriority, for example, can be expressed by a semantic process, namely verb reduplication:

- (20) **Limyè l limyè** **lanp lan papiyon an vole.**
 light 3SG light lamp DEF butterfly DET fly
 ‘Since he had turned on the lamp, the butterfly flew away.’ Haitian Creole

Table 4: Summary of Redundancy features language by language

Feature	French	Fongbe	Haitian Creole
Clausal Agreement/Cross-Reference	+	-	-
Phrasal Agreement	+	-	-
Concord	+	+	+
Tense Copying	+	-	-

4.2 Discontinuity

Of the Discontinuity features investigated in this study, one is possible in all three languages, namely Extraposition/Extraction, and one, i.e. Infixes, is not found in any of them. Raising, Circumfixes and Circumpositions and Raising Nominal Expletives, on the other hand, are not homogeneously spread. Raising is present in both French and Fongbe. In the former it is very common with verbs like *sembler* 'seem', which can only take one argument, namely a subordinate clause as in (21), *il* just being a dummy subject. The Undergoer *les élèves* 'the students' is where it semantically belongs: in the embedded clause.

- (21) a. Il semble **que les élève-s soi-ent fatigué-s.**
 it seemPRS.3SG COMP DET.PL.M student-PL beSBJV-3PL tired-PL.M
 'It seems that the students are tired.' French

The subject of the embedded sentence can however raise to the left of the main verb, creating semantic discontinuity:

- (21) b. **Les élève-s** sembl-ent fatigué-s.
 DET.PL.M student-PL seem-PRS.3PL tired-PL.M
 'It seems that the students are tired.' French

According to Lefebvre & Brousseau (2002), raising is also attested in Fongbe. In (22a) below, all arguments are where they belong semantically (and the verb takes a dummy subject *é*) but the Undergoer [j]è in (22b) has risen to the left of the main verb.

- (22) a. é hwè [j]è dò núsúnû ó mè.
 it lack salt at soup DET in
 'It lacks salt in the soup.' Fongbe

- (22) b. [j]è hwè dò núsúnû ó mè.
 salt lack at soup DET in
 ‘Salt is lacking in the soup.’ Fongbe

The other Discontinuity feature in which these three languages differ is Circumpositions. The latter are found in French, where the only instance of Circumposition is the negation *ne...pas/jamais/plus* etc. (23).

- (23) Je **ne** dor-s **pas/jamais/plus**.
 1SG NEG sleepPRS-3SG NEG/never/anymore
 ‘I don't sleep/I never sleep/I don't sleep anymore.’ French

It is, however, important to mention the possible evolution of *ne...pas* from the colonial times to present. Such negative elements undergo a specific chain of changes, also known as Jespersen's Cycle. As Jespersen (1917) showed, negation may go through three stages: a first stage with only one pre-verbal element (*ne*), a second stage in which *ne* is strengthened by another negative element (*pas*) and a third stage in which the first element is lost. French is currently moving towards the third stage: in spoken French *ne* has indeed disappeared. Jespersen (1917) shows that Old French (9–14th century) was at stage I, with only one negative element, Modern French was at stage II, and contemporary French is now moving towards stage III. What needs to be considered here is the timespan between Old French, the 18th century and today. Not having any linguistic records of the use of negation during the colonial time, we cannot make any precise claim, but we can assume French to have been in stage II of the cycle and therefore for the Circumpositions *ne...pas* to exist in the French spoken in the contact context we are interested in. Fongbe also has negative Circumpositions, namely *mà...o* in subordinate clauses (Höftmann 1993):

- (24) mí dó má àcèjí nu è **mà** só mò tèn bò jàjò dò tò mítòn ó.
 it NEG FM1 find possibility and exploit land POSS NEG
 ‘We must be on alert, otherwise we cannot find funds to exploit our land.’³
 Fongbe

As far as Raising Nominal Expletives are concerned, they are present in both French (21a above) and Fongbe (22a).

The last Discontinuity feature we investigated is Non-Parallel Alignment. It is present in both French and Fongbe. In the French example (25a) below, the

³ The first part of the sentence is not glossed. The author only provides the translation.

plural marker of *beau*, -x, forms a phonological unit with the following word, a phenomenon known as Liaison (Gess et al. 2012). A similar phenomenon can be observed in Fongbe (25b and c) (both Aboh, personal communication).

- (25) a. Les beau-x arbre-s. ==> le bo **zabɔ**
 DET.PL nice-PL tree-PL
 'The nice trees.' French
- b. Do xo na e ==> do xo **nice**
 say word to 3SG
 'Say a word to him/her.' Fongbe
- c. Da e ==> dee
 cook 3SG
 'Cook it.' Fongbe

Unfortunately for Haitian Creole no data were found, therefore no comparison is possible.

Table 5: Summary of Discontinuity features language by language

Feature	French	Fongbe	Haitian Creole
Extrapolation and Extraction	+	+	+
Raising	+	+	-
Circumfixes and Circumpositions	+	+	-
Non-parallel Alignment	+	+	ND
Infixes	-	-	-
Raising Nominal Expletives	+	+	-

4.3 Fusion

This category groups together four features: Cumulation of TAME and Case, Suppletion and Irregular Stem Formation.

French has Cumulation of TAME, as the verbal forms in (26a) show, and Cumulation of Case with person and number. The latter is however restricted to personal pronouns (26b).

- (26) a. Je mange/ mangeais
 1SG eatPRS.1SG/ eatPST.1SG
 'I eat/ate.' French

- (26) b. Je Me
 1SG.NOM 1SG.ACC/DAT
 ‘I’ ‘Me’ French

Fongbe also has Cumulation of TAME, with personal pronouns (example Aboh, personal communication):

- (27) ná màá
 FUT.1SG NEG.FUT.1SG Gungbe

The other two Fusion features were only found in French. Suppletion is quite common in irregular verbs, such as *être* ‘to be’ (28), while the formation of plural in nouns can present Irregular Stem Formation (29).

- (28) J(e) suis/ étais/ serai
 1SG be.PRS.1SG/ bePST.1SG/ beFUT.1SG
 ‘I am/was/will be.’ French
- (29) ciel cieux fol foux
 sky.SG sky.PL mad.SG mad.PL
 ‘the sky’ ‘skies’ ‘mad’ French

Table 6: Summary of Fusion features language by language

Feature	French	Fongbe	Haitian Creole
Cumulation of TAME and Case	+	+	-
Morphologically Conditioned Stem Alternation: Suppletion	+	-	-
Morphologically Conditioned Stem Alternation: Irregular Stem Formation	+	-	-

4.4 *Form-based Form*

The last category of features investigated in this study is Form-based Form, namely all those forms that do not have any pragmatic or semantic counterpart. The only feature with the same opacity value for all three languages is Syntactic Alignment. For all the others our languages behave differently.

Grammatical gender has only been found in French, where nouns are lexically assigned either masculine or feminine gender:

(30)	Masculine Nouns	Feminine Nouns	
	<i>le cheval</i> 'the horse'	<i>la grenouille</i> 'the frog'	
	<i>l'armoire</i> 'the wardrobe'	<i>la table</i> 'the table'	
	<i>le vélo</i> 'the bike'	<i>la voiture</i> 'the car'	French

Nominal Expletives are only present in French, where they are quite common, obligatory in weather (31), existential predicates (32) and in predicates expressing time (33).

(31) **Il** pleut.
3SG.M rain
'It rains.'

(32) **Il** y a un chien.
3SG.M there havePRS.3SG DET.M.SG dog
'There is a dog.'

(33) **Il** est trois heure-s.
3SG.M bePRS.3SG three hour-PL
'It's three o'clock.'

French

In Fongbe (14 above) and Haitian Creole (34) (from Glaude 2012: 325), on the other hand, they do not exist.

(34) Gen yon jè rapè ayisyen.
Have DET young rapper haitian
'There is a young haitian rapper.'

Haitian Creole

Complexity seems to only have influence on word order in French, where it causes Heavy Shift:

(35) Le cadeau qu'ont tous donné à la maîtresse
DET.M present COMP havePRS.3PL givePST.PART to DET.F teacher.F
les enfants de la classe de Marie.
DET.PL kidPL of DET.F class of Marie
'The present that we all kids from Mary's class gave the teacher.'

In French most grammatical information, e.g. gender, number (17a), and TAME (26a), is marked through the use of affixes, while only definiteness (*le cadeau* in 35) and possession (*de Marie* in 35 above) are marked through free-standing forms, such as determiners and prepositions. Following from this, French can be said to be a Predominantly Head Marking language. Fongbe does not show

instances of Head Marking, as exemplified in (17b) re-proposed below as (36) in which both possession (tòn), definiteness (ó) and number (lé) are marked on the phrase level.

- (36) dɨdè dɔ̀gbè kòkú tòn ó lé
 sketch good Koku GEN DET PL
 'Koku's good sketches.' Fongbe

Haitian Creole behaves the same in this respect, as the plural marker *yo* in (37) shows (example from Glaude 2012: 236).

- (37) M wè yonn nan chwal Jan yo.
 1SG see DET PREP horse Jean PL
 'I have seen one of Jean's horses.' Haitian Creole

As far as Morphologically Conditioned Stem Alternations are concerned, French is the only language of our sample to have them. The former can be seen in the plural formation of nouns:

- (38) travail travau-x
 jobSG job-PL French

Finally, Morpho(phono)logically-Conditioned Affix Alternation was found in all three languages. French shows Conjugation and Declension. In this language verbs belong to three different groups. The first and biggest group (90% of the verbs belong here) contains all regular verbs finishing in *-er* like *aimer* 'to love', the second all those in *-ir* like *finir* 'to finish' and whose present participle finishes in *-issant* like in *finissant* 'finishing', while in the third group we find all the other verbs (mostly irregular) not belonging in the first or the second, like *aller* 'to go'. Nominal declension does not exist in Modern French, but pronouns do still have a residue of the Latin declension system:

Table 7: French Pronominal Declension

	Nominative	Accusative	Dative
1SG	Je	Me	Me
2SG	Tu	Te	Te
3SG	Il, Elle, On	Le, La	Lui
1PL	Nous	Nous	Nous
2PL	Vous	Vous	Vous
3PL	Ils, Elles	Les	Leur

Fongbe and Haitian Creole show Affix Alternation as well. In the former the diminutive suffix *-i* shows vowel assimilation, see the example in (39) (from Lefebvre & Brousseau 2002: 25).

- (39) àčú-ví => pronounced [àčúvú]
 rat-DIM
 ‘little rat’ Fongbe

In Haitian Creole, on the other hand, the definite determinant particle *la* changes in relation to the last syllable of the preceding word, see (40) (Glaude 2012: 37).

- (40) C [-nasal] ==> la (es. Tab la 'the table')
 V [-nasal] ==> a (es. Vwati a 'the car')
 V [+nasal] ==> an (es. Chen an 'the dog')
 V [-nas] + C [+nas], V [+nas] + C [+nas] and V [+nas] + C [-nas] ==> nan

 Machin nan
 car DET
 ‘The car.’

Table 8: Summary of Form-based Form features language by language

Feature	French	Fongbe	Haitian Creole
Grammatical Gender	+	-	-
Syntactic Alignment	+	+	+
Nominal Expletives	+	-	-
Influence of Complexity in Word Order or Heavy Shift	+	-	ND
Predominantly Head Marking	+	-	-
Morph. Conditioned Stem Alternation	+	-	-
Morph. Conditioned Affix Alternation and Conjugation/Declension	+	+	+

4.5 Summary

Before moving to the discussion, we present a summary of our findings. French turns out to be the most opaque language in our sample, with nineteen features out of twenty (only Infixes were not found). Fongbe has nine: Concord, Extraposition and Extraction, Raising, Circumpositions, Non-Parallel Alignment, Cumulation of Case, Raising Nominal Expletives, Syntactic

Alignment and Affix Alternation. In Haitian Creole, on the other hand, only four features were found, namely Concord, Extraposition and Extraction, Syntactic Alignment and Affix Alternation. The overall results are summarized in Table 9 below.

Table 9: Summary of the results

Feature	French	Fongbe	Haitian Creole
Clausal Agreement/Cross-Reference	+	-	-
Phrasal Agreement	+	-	-
Plural and Negative Concord	+	+	+
Tense Copying	+	-	-
Extraposition and Extraction	+	+	+
Raising	+	+	-
Circumfixes and Circumpositions	+	+	-
Infixes	-	-	-
Non-Parallel Alignment	+	+	ND
Raising Nominal Expletives	+	+	-
Cumulation of TAME and Case	+	+	-
Suppletion	+	-	-
Irregular Stem Formation	+	-	-
Grammatical Gender	+	-	-
Syntactic Alignment	+	+	+
Nominal Expletives	+	-	-
Heavy Shift	+	-	ND
Predominantly Head Marking	+	-	-
Stem Alternation	+	-	-
Affix Alternation and Conjugation/Declension	+	+	+

5 Discussion and conclusion

Our results show a very interesting pattern. As outlined in Section 2.3 above, we predicted that Haitian Creole, being a contact language, would be more transparent than its sub- and superstrate languages. The results clearly show that our prediction is borne out. Haitian Creole does not only present less opaque

features than French and Fongbe, but as Table 9 above shows, all opaque features present in Haitian Creole are also present both French and Fongbe. Moreover, by comparing the results to the implicational hierarchy proposed by Leufkens (2015) in (1) above and proposed again here in Table 10 with our results, it is clear that there is a correspondence.

Table 10: Implicational Hierarchy

Features	French	Fongbe	Haitian Creole
Nominal expletives, clausal agreement	+	-	-
Grammatical gender, tense copying	+	-	-
Suppletion	+	-	-
Phrasal agreement, irregular stem formation	+	-	-
Phrasal agreement, irregular stem formation	+	-	-
Predominant head-marking	+	-	-
Morpho(phono)logically conditioned affix alternation	+	+	+
Grammatical relations	+	+	+

Our results proved this hierarchy to be correct. French indeed presents both Clausal Agreement and Nominal Expletives and all other features lower in the hierarchy. Haitian Creole and Fongbe, on the other hand, have Morphologically and Morphophonologically Conditioned Affix Alternation and also the feature underneath them in the hierarchy, Syntactic Alignment (Grammatical Relations in Leufkens 2015). One point needs to be addressed, though. In her study Leufkens (2015) only looked at Nominal Expletives in weather predicates, while we looked at them in non-raised constructions like (22a) above as well. Leufkens (2015) considered the latter less opaque than the former because according to her they still have a semantic correspondent, namely the subordinate sentence. As outlined in Section 3.3.4 above, we do think that they are not less opaque but should rather belong to another category, that is Discontinuity. The Nominal Expletives in Table 10 above are in fact the ones found in weather predicates, which we only found in French, and not the ones in non-raised constructions, which we also found in Fongbe. This suggests that these two categories do not just belong to different opacity groups, but might also be different in nature and therefore generated at different moments in time. This implicational hierarchy is very important in this respect. As a matter of fact, if the presence of a feature implies the presence of all features under it in the hierarchy, it follows that opaque features should appear in languages in a

bottom-up way: first Grammatical relations followed by Morpho(phono)-logically conditioned affix alternation and so on. This could provide a very important tool for the study of diachronic variation and language development and therefore needs further investigation.

However, as every study, this one also presents some shortcomings. When studying creole languages, certain factors must be taken into account. As every other colonial creole, the one studied here is the result of different languages coming into contact with each other. In this study we only investigated French and Fongbe, because they had the biggest influence on the development of Haitian Creole (Bonenfant 2011). Future research is needed in order to investigate the other languages that influenced it, which, as documented by Bonenfant (2011), are Wolof, Ewe, Portuguese and Spanish. Ideally another language should be studied as well, namely Taíno, the language spoken in the Caribbean before the European invasion, but since it has been extinct since the 16th century not many records are available (Aikhenvald 2012). The other issue with colonial creoles is represented by, first of all, the specific variety of the different languages involved in the contact situation and, secondly, the stage of their development. As far as variety is concerned, those spoken by the colonizers were non-standard varieties. This should be considered in a study such as the current one, but as nowadays there are no records available of those vernaculars, it is clearly impossible. The second important issue is represented by the different stages of development of the languages involved in the creole's genesis. These two factors are known as the Founder Principle (Mufwene 2009). When dealing with the genesis of a creole it is indeed important to consider different varieties, including then ones spoken by the colonizers, and the stage of development of the languages involved. This has revealed itself to be difficult in the present study for the aforementioned reasons, with the exception of the French negation.

To conclude, a more in-depth study considering all contact languages Haitian Creole originated from would provide a more specific and detailed picture of the situation and should be considered for further research. Nevertheless, our results are already pretty straightforward. They indeed not only confirm the hypothesis that language contact drives languages towards transparency, but also prove the existence of an implicational hierarchy of opacity features. The latter is very important and also suggests a specific pattern that languages should follow in their evolution towards transparency.

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