Vestigial phonaesthemic alternations in West Flemish: consonantal play as evidence for the emergence of phonaesthesia through language contact

Jeroen Willemsen (jeroen@cc.au.dk), Aarhus University
Joost Roger Robbe (gerjr@cc.au.dk), Aarhus University

In this article, we present cross-linguistically rare and typologically unusual data from the Dutch dialect of West Flemish, in which a root-initial consonant or consonant cluster may be replaced by a post-alveolar affricate /ʧ/ or /ʤ/ with the effect of creating a phonaesthemically marked variant of a neutral base word. Although no longer productive in West Flemish, we show that such phonaesthemic alternations exhibit strong functional similarities to those found in other languages (Nichols 1971, Willemsen and Hjorth Miltersen 2020), in particular the evaluative notions of diminutivity and augmentativity. We also show that, formally speaking, West Flemish phonaesthemic alternations differ from those attested in other languages in only targeting a single, root-initial consonant or consonant cluster. We further argue that these alternations are the result of 'foreigner speech' imitative of the neighbouring language Picard, corroborating the notion that phonaesthemic alternations may emerge from language contact

Keywords: West Flemish, language contact, sound symbolism, phonaesthemic alternations, phonaesthesia, evaluative, diminutive, augmentative

1. Introduction[1]

In this article, we report on a cross-linguistically rare phenomenon in West Flemish, namely the substitution of word-initial consonants or consonant clusters with the post-alveolar affricates /ʧ/ or /ʤ/ for phonaesthemic effect. Consider the following example:

(1) *tingel* 'stinger, thorn, nettle; spike; lath'
tjingel 'penis (vulgar)'

In the phonaesthemically neutral base word *tingel*, the initial consonant is substituted with *tj* /ʧ/, resulting in a phonaesthemically marked counterpart, written *tjingel*. Such phonaesthemic counterparts are characterised by a semantic-pragmatic enrichment that turns the neutral base word into an expressive or evaluative word, which may convey notions such as endearment, derogation and vulgarity as well as increased or decreased intensity.

The evaluative flavour of *tj*- and *dj*-initial words is due to the fact that /ʧ/ and /ʤ/ are phonaesthemes. Phonaesthemes can be defined as recurrent pairings of sound and meaning across different lexemes, such as English *fl*- in words such as *flash*, *flicker* or *flame* – see Section 5 for a more elaborate discussion. The type of process displayed in (1), however, where a word is phonaesthemically derived from a phonaesthemically neutral base word, is called *phonaesthemic alternation*. Following Willemsen and Hjorth Miltersen (2020), phonaesthemic alternations can be defined as "regular, phonological-based operations that take place on all relevant segments of a given form, the underived form being neutral and unmarked relative to the derived form."

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In languages that display phonaesthemic alternations, these alterations are usually either productive or lexically well preserved (Nichols 1971: 828); however, in West Flemish, they are vestigial. Minimal pairs such as (1) are rare, and the alternation between a neutral base form and a phonaesthemically marked form is seldom employed to create some kind of semantic-pragmatic distinction. Despite this, the basic characteristics of West Flemish phonaesthemic alternations are largely in line with previous observations about phonaesthemic alternations; as such, in this article, we will make the following three claims.

Firstly, such alternations are semantically and pragmatically similar to what has been observed in other languages, in the sense that the phonaesthemic effect of any given alternation is functionally akin to derivational morphology, in particular augmentative and diminutive operations (Nichols 1971, Willemsen and Hjorth Miltersen 2020), which may involve size but which are often associated with semantic-pragmatic notions like intensity of action, endearment, vulgarity and derogation.

Secondly, as in at least a few other languages with phonaesthemic alternations (see e.g. Sapir 1958 [1915] on Nuu-chah-nulth, Willemsen and Hjorth Miltersen 2020 on Reta), these alterations appear to have emerged from language contact. In the case of West Flemish, we claim that it is contact with speakers of Picard – a language characterised by a high degree of word-initial palatalisation – that underlies the emergence of phonaesthemic alternations.

Thirdly, phonaesthemic alternations in West Flemish differ formally from those found in other languages. Whereas Willemsen and Hjorth Miltersen (2020) observed that phonaesthemic alternations target all relevant phonemes in a given base form regardless of their position, West Flemish alternations exclusively target root-initial consonants and consonant clusters.

The article is organised as follows. In Section 2, we provide a brief overview of West Flemish. In Section 3, we explore the phonaesthemic effect associated with /ʃ/ and /ʤ/, including phonaesthemic alternations such as in (1). In Section 4, we argue that the emergence of /ʃ/ and /ʤ/ as phonaesthemes can be attributed to contact with Picard, and, in Section 5, we explore some of the formal differences with phonaesthemic alternations as found in other languages. In Section 6, we provide a summary.

2. West Flemish

West Flemish is one of four major Southern Dutch dialects, along with East Flemish, Brabantian and Limburgian. The West Flemish dialect region is situated at the Germanic-Romance language frontier and, to the south and the south-east, it borders the Picard region (Devos and Vandekerckhove 2005: 20). West Flemish is a relatively conservative dialect, but it is also characterised by a number of individual innovations that set it apart from other Dutch dialects (Ryckeboer 2004: 44–54, Devos and Vandekerckhove 2005: 23–25, 48–50). Some of these innovations are most certainly the result of language contact with Picard. See the following examples:

- Old Dutch *al* or *ol* before *d* or *t* > /u/ in West Flemish, e.g. *oed* [ut] ‘old’, *koed* [kut] ‘cold’ and *zoet* [zut] ‘salt’ – Picard also exchanged Latin *al* and *ol* for an /u/-like sound (Ryckeboer 2004: 44).

- Realisation of Middle Dutch /l/ as /w/ after a vowel, e.g. *hol* > *ow* [ɔw] 'hole' – also found in Picard and particularly prevalent in the areas at the Germanic-Romance border (Ryckeboer 2004: 58).
- Lowering of Middle Dutch /yː/ to /øː/ before /r/, e.g. *gebeur* [hə'bøːr] 'neighbour', *meur* [møːr] 'wall' and *zeur* [zøːr] 'sour' (cf. standard Dutch (*ge*)*buur* [χəˈbyːr], *muur* [myːr], *zuur* [zyːr]) – also found in Picard and particularly prevalent in the areas at the Germanic-Romance border (Devos and Vandekerckhove 2005: 49).

These innovations are the result of long-term language contact that began around the beginning of the 11th century, when, owing to increased trade and geographical mobility, areas in Nord-Pas de Calais that were originally Flemish speaking became increasingly Picardicised (Ryckeboer 2004: 26). Ryckeboer notes that the influx of speakers of Picard in these areas meant that Flemish speakers were obliged to learn the language of their Picard-speaking neighbours, which resulted in varying degrees of bilingualism.

Because of the proximity of Paris to the northernmost regions of France, Picard was greatly influenced by French (that is, the varieties that were spoken in and around Paris) and vice versa. As a result of the linguistic similarities between Picard and French, the former has not always been recognised as a language in its own right but rather as a distortion of French (see e.g. Orem 2000). This view of Picard is the same in Flanders as it is in France; the 19th century French-speaking Flemish bourgeoisie were keen to speak Parisian French and likewise relegated Picard to second-class status.

Besides the innovations listed above, a particularly characteristic trait of West Flemish is the prevalence of /ʧ ʤ/ in the lexicon relative to other Dutch dialects, which we argue can also be attributed to contact with Picard. In standard Dutch, these phonemes hardly ever occur in initial position (Booij 1995: 7).

3. /ʧ/ and /ʤ/ in West Flemish

We will now explore the phonaesthemic effect of the affricates /ʧ/ and /ʤ/ in West Flemish. We will first identify in which position these affricates occur in West Flemish and explain their origin. We will then offer an overview of the linguistic environments in which they occur and the functions they perform.

3.1 Occurrences of /ʧ/ and /ʤ/ in West Flemish

In most other Dutch dialects and in standard Dutch, /ʧ/ and /ʤ/ only occur in a number of loan words and as allophones of the sequences /tj/ and /dj/ (Booij 1995: 7). The frequent occurrence of /ʧ/ and /ʤ/ in West Flemish is partly due to a number of individual innovations and partly due to contact with Picard. The individual innovations are primarily the result of phonological processes, both diachronic and synchronic, where [ʧ] and [ʤ] became allophonic realisations of other consonants or sequences of consonants. For example, we find [ʧ] and [ʤ] as a result of encliticisation of the West Flemish personal pronoun *ge* ('you', second-person singular and plural, subject case):

(2) *maakt-ge* ['makʧə] 'do you make'
woont-ge ['wøːnʤə] 'do you live'

We also find [ʧ] and [ʤ] as the result of affixation, mainly the addition of the original Middle Dutch diminutive suffix -/ki(ː)n/ – synchronically /-ʧə/, though with various allomorphs (Booij 1995: 69–73) – to words ending in /t/, /d/ or a vowel:

(3) *pint-je* ['pinʧə] ‘(a) small beer’
bad-je ['bɑʧə] ‘(a) small bath’
koe-tje [kuʧə] ‘(a) small cow’

We also find them as the result of atonic vowel deletion and subsequent realisation of the resulting consonant cluster as a post-alveolar affricate, either diachronically as in *tjeugen* < Middle Dutch *tegegen* ‘against’ or synchronically as in *te jaren* [ʧɔːrən] ‘next year’.

Furthermore, like in standard Dutch, voiceless /ʧ/ may also be the result of added friction in overstressing initial /j/ in exclamations: *tja, tja-tja, sja, tsja-tsja* ‘well(-well)’ < *ja* ‘yes’, and *tjonge, sjonge, tsjonge* ‘oh boy’ < *jonge*(*n*) ‘boy’ (Roelandts 1989: 152). For West Flemish, De Bo (1873: 239, 1155) also mentions exclamations with initial /ʧ/ or /ʤ/ that function as calls for livestock: *tjagouw*, with the derivative verb *tjagouwen*, for cows and *djo* or *djouw* for horses. An onomatopoeia in both standard Dutch and West Flemish is *tjilpen* ‘to chirp’.

In many cases, however, post-alveolar affricates are the result of borrowing from Picard, as the palatalised realisations [ʤ] and [ʧ] for /dj/ and /tj/ are common in the varieties of Picard that border West Flemish to the south and southeast. These borrowings include proper nouns such as *Djel* (cf. Fr. *Gilles*) and *Djoos* (cf. Fr. *Jos*, also *Joseph*) as well as common nouns, verbs, adjectives and some interjections. These Picard words typically have an easily recognisable non-affricate-initial French counterpart. Here are some examples of such Flemish words (and their French counterparts):

(4)	*djablentijn*	‘aniseed stick’	(cf. Fr. *diablotin*)
	djauw(el)	‘devil’	(cf. Fr. *diable*)
	nondedju!	‘damnit!’	(cf. Fr. *nom de Dieu*)
	djent/*djint*	‘gentle’	(cf. Fr. *gentil*)
	tjijpen	‘steal’	(cf. Fr. *chipper*)
	tjanter	‘truncated stem in a hedge’	(cf. Fr. *chandelier*)
	tjok	‘piece of wood, block, stump’	(cf. Fr. *souche*)

The affricated West Flemish pronunciation of *djablentijn*, *djauw(el)* and *nondedju* corresponds to the pronunciation in the neighboring varieties of modern Picard (cf. modern Picard *djale* and *djaule* vs Fr. *diable*), whereas the pronunciation of *djent*/*djint* and *tjijpen* with the respective affricates corresponds to the affricated pronunciation in Picard in earlier stages. This pronunciation still exists in the eastern zone of Picard, but it no longer exists in those Picard varieties that border West Flemish. The West Flemish pronunciation of *tjanter* corresponds to the modern Picard (Roubaix-Tourcoing) palatalisation of [k+ã]. The West Flemish word *tjok* has the least recognisable French counterpart: *souche*. It is borrowed from modern Picard *choque* [ʧɔk] ‘block’ (< Gaulish **tsukka* ‘tree trunk, stump’), whilst the Old French cognate *çoche* ‘log’, with initial [ts], has evolved into Modern French *souche* ‘stump, stock, block’ (Tobler and Lommatzsch 1925: 993).

However, two West Flemish French loan words have initial affricates that do not correspond to any word-initial affricates in Picard:

(5)	*tjokke*	'beret'	(cf. Fr. *toque*)
	tjolpe	'shrew, kind of mouse'	(cf. Fr. *taupe* 'mole')

These words demonstrate a general tendency to pronounce Picard loan words with initial post-alveolar affricates, most likely as a result of analogical extension based on sound correspondences in other loans such as in (4).[2] The same phenomenon can be seen in the West Flemish loan *tjette/sjette* (cf. Fr. *sayette*), meaning a type of knitting wool typically produced in the region of Amiens in Picardy (Vanhaeck 1910; Coornaert 1930). In this case, both variants, i.e. those with and without initial affricate, co-exist.

Furthermore, both affricates occur in a sizeable number of sound-symbolic words. They occur in a number of onomatopoeia, i.e. image-iconic words (6). There is also a relatively large number of other phonaesthemically marked – i.e. sound-symbolic but not image-iconic – words; nouns with initial /ʧ ʤ/ tend to denote insignificant, vulgar or otherwise low-status entities (7), while verbs often express uncontrolled or ineptly executed action or undesirable states (8). The fact that these affricates are particularly prevalent in such words is testament to Klamer's (2002) observation that so-called structural markedness – /ʧ ʤ/ are clearly marked sounds in West Flemish – is associated with semantic and pragmatic markedness.

(6)	*tjilpen*	'to chirp'
	tjiepen	'to tweet, squeal, chirp; to cry, whine'
	tjikken	'to sing (of a female finch)'
(7)	*tjafeute*	'bearer, porter'
	tjoe/*tjeute*	'pig' (*tjoe* also 'interjection to call a pig')
	tjiepe	'miserable and tweeting bird, s.o. miserable who complains often'
(8)	*tjakken*	'to walk with difficulty (e.g. a limp), hop'
	tjaffen	'to stumble, limp, trip'
	tjuffen	'to be confused, dim, clueless'

Unlike in most languages, however, many such words in West Flemish are characterised by an alternation between a neutral base word on the one hand and a phonaesthemically derived counterpart on the other, as was shown in (1) above. That is to say, phonaesthemic words are in some cases derived from a neutral base word. For West Flemish, this involves replacement of the initial consonant, or consonant cluster, with *tj* or *dj*. This is the topic of the next section.

3.2 /ʧ/ and /ʤ/ in phonaesthemic alternations

As was shown in (1) above, phonaesthemically marked words may be derived from a neutral base form by substituting a root-initial consonant or consonant cluster with /ʧ/ or /ʤ/. The rules are C(C)+VOICE → ʤ /#_ and C(C)-VOICE → ʧ /#_, where '#' stands for a root, i.e. any voiced root-initial consonant or consonant cluster will be substituted with /ʤ/, and any voiceless root-initial consonant or consonant cluster will be substituted with /ʧ/.[3] However, in some cases,

[2] Post-alveolar affricates also occur in English loan words, e.g. *Djek*, *Djik*, *Tjek*, *Tjik* 'nickname for Englishmen' < Eng. *Jack*; *djien* < Eng. *gin*; *tjikkel*/*sjikkel* < Eng. *shackle*; and *djomper* 'fisherman's smock' < Eng. *jumper*.
[3] In the dictionaries consulted, the consonant cluster is always <*sch*>. Note that there are five different phonetic realisations of <*sch*> in West Flemish (Taeldeman 2013: 164).

either /ʤ/ or /ʧ/ may occur. We were able to identify approximately 40 such phonaesthemic minimal pairs and will now discuss selected examples.[4]

While in the minimal pair in (1), i.e. *tingel* 'stinger, thorn, nettle; spike; lath' vs. *tjingel* 'penis', the phonaesthemically derived word has acquired a specialised meaning not present in the neutral base word *tingel*, few other pairs display such a strong semantic-pragmatic contrast. In most pairs, the phonaesthemic counterparts are generally considered to be 'expressive variants' of one and the same concept (e.g. Debrabandere 2002), as in the following pairs, where the phonaesthemically derived words *tjeffen* and *tjateren* – while expressive (or evaluative) – do not differ denotationally from their neutral counterparts.

(9) *keffen ~ tjeffen*
'to bark (esp. small dogs), squeal, shout'

tateren ~ tjateren
'to chatter, babble, talk excessively'

What is more, these phonaesthemic alternations are vestigial to such an extent that any alternation between two forms is seldom employed to create some kind of semantic-pragmatic distinction. In other words, while speakers may be aware of the existence of either counterpart of a pair, the 'consonantal play' that gave rise to such pairs has largely gone out of use. Nevertheless, the general semantic domains in which the phonaesthemic alternations occur and a number of more drastic meaning specialisations such as (1) allow us to draw some conclusions with regard to the general semantic-pragmatic effects these phonaesthemic alternations are associated with. More specifically, we argue that, as in other languages with phonaesthemic alternations, these are broadly associated with the evaluative concepts of diminutivity and augmentativity.

A frequent semantic domain in which phonaesthemic alternations are found is verbs that denote sounds or the production of sounds. Some examples of this were provided in (9), and these are further examples:

(10) *galpen* (*~galferen*) ~ *tjalpen* (*~tjalfen*)
'to bark, squeal, shout, bellow; to cry, whine'

piepen ~ *tjiepen* (*~tjupen, tjippen*)
'to tweet, squeal, chirp; to cry, whine'

sudderen ~ *tjutteren* (*~tsutteren*)
'to simmer, produce a simmering sound'

We identified one sound-denoting word in which the phonaesthemically derived word has acquired a specialised meaning (11); whereas *tikken* is used for the production of any type of ticking sound, *tjikken* is only used for the singing of a female finch. As we will see below, we were also able to find such meaning specialisations in other domains.

(11) *tikken* (*~tokken*) 'to tick, produce a ticking sound'
tjikken (*~tjokken*) 'to sing (of a female finch)'

[4] The sources we relied on, beyond one author's personal acquaintance of the language, are De Bo's (1873) West Flemish idioticon, Devos and Vandekerckhove's (2005) description of West Flemish, and Debrabandere's (2002) etymological dictionary of West Flemish.

We also found phonaesthemic alternations in verbs that express an undesirable state or action and that often highlight ineptitude or a lack of some kind of potency:

(12) *sukkelen* ~ *tjukkelen*
'to struggle'

suffen ~ *tjuffen* (~*tjuffelen, tjaffelen*)
'to be confused, dim, clueless'[5]

solen† ~ *tjolen* (~*tjotelen, tjolken*)
'to be poor and miserable'[6]

dompelen ~ *djompelen*
'to struggle, make useless attempts at something; to wander'[7]

toeken ~ *tjoeken* (~*tjoekelen*)
'to work fruitlessly, fumble, mess something up'

dingelen (~*dangelen*) ~ *djingelen* (~*tjingelen, djangelen*)
'to haggle'

We also found phonaesthemic alternations in verbs that denote some kind of bodily movement and that highlight the uncontrolledness or ineptitude with which this movement is carried out:

(13) *saffelen* (~*schaffelen*) ~ *tjaffelen* (~*tjanfelen, tjafaffen, tjeffelen*)
'to stumble; to walk with a limp, drag one's feet'[8]

schobbelen (~*sobbelen*) ~ *tjobbelen*
'to stumble, trip'[9]

schampelen ~ *tjampelen*
'to touch in passing, graze, ricochet, slide/chafe off, falter'[10]

schonkelen ~ *tjonkelen*
'to walk with a limp, toddle, stumble'[11]

Some such verbs have a phonaesthemically derived counterpart with a specialised meaning. For instance, whereas neutral *schuiven* in (14) may denote any kind of sliding movement (or, alternatively, development), its phonaesthemic counterpart *tjeuvelen* – with vowel alternation and an (unproductive) iterative/attenuative suffix *-elen* – is only used with the meaning 'to stumble, trip'.

[5] The variant *tjaffelen* is homophonous with *tjaffelen* (< *saffelen*) in (13) (see Debrabandere 2002: 401).
[6] Debrabandere (2002: 403) suggests a relation with *dolen* 'to wander'. This would run counter to the observation that initial voiced consonants are replaced by /ʤ/ and not /ʧ/ (on which see Section 3.3 below). Also, *solen*—an extinct variant of *zeulen*—has a range of meanings which are much more closely related to *tjolen*: Middle Dutch *solen* meant 'to become/make dirty', and, by extension, 'to do dirty/hard work'. It came to mean 'to lead a miserable existence' in later stages.
[7] *Dompelen* also means 'to dip (in water)'. According to Debrabandere (2002: 82), it developed the meaning in (12) as a result of exiled Anabaptists, who roamed the country in the 16th century and were continuously expelled. The Anabaptists were christened as adults by being submerged in water.
[8] An iterative/attenuative form of *schaven* 'to chafe, graze, smoothen' (> *schavelen* > *schaffelen*), i.e. 'to chafe or graze the ground repeatedly' (see Debrabandere 2002: 329).
[9] From *schuiven* (14) with ablaut.
[10] An iterative/attenuative form of *schampen* 'to scrape'.
[11] From *schommelen* 'to swing' or 'to walk in an irregular way'.

(14) *schuiven* ‘to slide; to develop, proceed’
tjeuvelen ‘to stumble, trip’[12]

This suggests that, in earlier stages, the phonaesthemic effect of the alternations for such verbs was functionally akin to a diminutive operation (see e.g. Grandi and Körtvélyessy 2015), i.e. it emphasised the insignificance or ineptitude of a referent, often with an endearing effect. This is further corroborated by another case of meaning specialisation:

(15) *hinken* (~*hinkelen*) ‘to hop on one leg’[13]
tjinken (~*tjinkelen*) ‘to play hopscotch’

Whereas *hinken* means ‘to hop on one leg’ in any type of context (though cf. footnote 13), *tjinken* can only refer to hopscotch as a children’s game – see Böhmerová (2011:75) on the association of Slovak verbal diminutives with children’s activities and Jurafsky (1996).

However, at least one pair appears to be associated with augmentativity rather than diminutivity, in a domain which is cross-linguistically associated with augmentativity – see Willemsen and Hjorth Miltersen 2020 and footnote 17. This verb, *schingelen* ‘to shake’ (16), has a phonaesthemic counterpart with a strong semantic specialisation; *tjingelen* ‘to have intercourse (vulgar)’.[14]

(16) *schingelen* ‘to shake (esp. in a slinging fashion)’
tjingelen ‘to have intercourse (vulgar)’

Admittedly, it is not entirely clear whether *tjingelen* is indeed derived from *schingelen*, and it is possible that the noun *tjingel* ‘penis (vulgar)’ – see (1) – has influenced it (cf. Debrabandere 2002: 402). Furthermore, as we will see below, it is mainly in the nominal domain that phonaesthemic alternations are most often associated with augmentativity.

Let us now turn to nouns. Firstly, there are a number of nouns denoting inanimate objects whose phonaesthemic counterparts have a more-or-less specialised meaning in which the diminutive aspect of the object is emphasised. For instance, both neutral base words in (17), *toppelke* and *topke*, are already diminutive, as evidenced by the diminutive suffix *-ke*, but this is further emphasised in the phonaesthemic counterparts *tjoepelke* and *tjoepke*.

(17) *top(pel)ke* ‘cap, top, peak (diminutive)’
tjoep(el)ke ‘cap (esp. beer bottles), tip (diminutive)’

A particularly interesting example of phonaesthemic derivation of an object-denoting noun was already presented in (1), where the phonaesthemic counterpart of *tingel* ‘stinger, etc.’ acquired the specialised meaning ‘penis’ – also cf. (16).[15]

Secondly, there are a number of nouns denoting humans which are used as swearwords:

[12] The alternation *eu~ui* [ø]~[œ] is characteristic of West Flemish (cf. De Bo 1873: 424).
[13] Neither *hinken* nor *hinkelen* are recognised as part of the West Flemish lexicon by all speakers, but *tjinken* and *tjinkelen* are definitely derived from these forms. Both *hinken* and *hinkelen* (or some variant thereof) are part of the lexicon of most Dutch dialects and likely used to be in West Flemish as well (cf. De Bo 1873: 430–431).
[14] The verb *schingelen* is a variant of *schongelen* (cf. High German *schunkeln*), which is in turn related to standard Dutch *schommelen* ‘to swing’.
[15] Ultimately a diminutive of *tang* (with the same meaning), possibly influenced by *tjingelen* ‘to have intercourse (vulgar)’ (16).

(18) *sul* ~ *tjul* (*~tjulten*)
‘dork, simpleton, duffer, idiot (male)’

seute (*seuteke, sutte, sutteke*) ~ *tjeute* (*~tjeuteke*)
‘dork, simpleton, duffer, idiot (female)’[16]

jezeke ~ *djezeke* (*~djezege, tjezeke*)
‘someone bigoted, much too righteous (lit. ‘little Jesus’)’

These examples are neither clearly diminutive nor clearly augmentative, as pejoration appears to be a common phenomenon in both diminutive and augmentative operations, both as a regular morphological operation and in phonaesthemic alternations (Nichols 1971; Bakema and Geeraerts 2004: 1049, also see Böhmerová 2011: 120 on Slovak). It can be observed, however, that *tjul* (< *sul*), used for males, may take an augmentative suffix *-en*, whereas *seute* and *tjeute*, which are used for females, may take a diminutive suffix *-ke*. Both *jezeke* and *djezeke* likewise have a diminutive suffix. Augmentativity and diminutivity and are often associated with male and female gender respectively, either in the grammatical or the human sense (Bakema and Geeraerts 2004: 1048).

Lastly, a small number of action nouns, all of which express some kind of impactful event, also have a phonaesthemic counterpart:

(19) *gewoel* ‘melee, crowdedness, commotion’
djawoel (*~djamoel, zjamoel*) ‘melee, crowdedness, commotion (intensified)’

gewaai ‘blast, wind’
djawaai (*~zjawaai*) 1. ‘blast, wind (intensified)’, 2. ‘pretention’

kap ‘a strike, blow (physical)’
tjap ‘a blow (regarding one’s health)’

The phonaesthemically derived *djawoel* is an intensified variant of the neutral base word *gewoel*. The same applies to *djawaai*, which also has an additional sense meaning ‘pretention’. Finally, *tjap* is an example of strong semantic specialisation; whereas *kap* may only be used to denote a physical blow or strike, *tjap* specifically denotes a blow in the context of one’s health.

These examples are more clearly augmentative in nature; both *gewoel ~ djawoel* and *gewaai ~ djawaai* are associated with an increase in intensity, which is typical for augmentatives. This is less obvious for *kap ~ tjap*, although it has been observed in Willemsen and Hjorth Miltersen (2020) that augmentatives may also express a human-nonhuman distinction, which also appears to be the case here, i.e. a literal strike or blow to a human or non-human referent as opposed to a figurative blow specifically pertaining to the health of a human referent.

In the following section, we will provide a more elaborate discussion of the function and form of these alternations.

[16] Perhaps connected to *seuteren*, which means ‘to simmer’, and, by extension, ‘to grunt (like a pig), grumble’ and ‘to dawdle, blabber, chatter idly’ (Debrabandere 2002: 352–353).

3.3 The function and form of phonaesthemic alternations

Having presented a number of phonaesthemic alternations and their characteristics, it is now necessary to examine their function and form. We will first discuss the functional aspects before turning to the formal aspects.

As mentioned at the beginning of this article, the phonaesthemic alternations presented here are vestigial to the extent that the alternation between a neutral base form and a phonaesthemically derived form is seldom employed for semantic-pragmatic purposes (except, of course, in those cases where the derived form has acquired a specialised meaning). As a result, the precise semantic-pragmatic difference between two forms in any given pair is often difficult to pinpoint. However, it is clear that these phonaesthemic alternations as a whole are *evaluative* in the sense that they are functionally akin to both diminutive and augmentative operations in other languages. This is confirmed by the following observations:

(i) Where a phonaesthemically derived form has acquired a specialised meaning, this may be associated with diminutivity, e.g. it may pertain to children (15) or other small referents as in (11) and (17), or it may highlight some kind of ineptitude (14). It may also be associated with augmentativity in creating a vulgar variant as in (16), or it may have an effect on the intensity of the action (19). This bears a functional likeness to diminutive and augmentative operations in other languages, namely an increase or decrease in size or significance, pejoration, vulgarity or intensity.[17] Furthermore, it is precisely these types of semantic-pragmatic alternations that are also attested in other languages with phonaesthemic alternations – see Silverstein (1994: 45–46) on Wasco, Nichols (1971) on various other Western North-American languages, De Reuse (1986) on Santiago del Estero Quechua and Willemsen and Hjorth Miltersen (2020) on Reta and various other languages.[18]

(ii) In the absence of such a specialised meaning – in phonaesthemic pairs, but also in those words that do not enter into a phonaesthemic pair, e.g. (6) and (7) – /ʧ/ and /ʤ/ are likewise associated with small, inept, low-status or vulgar entities.

(iii) Diminutive and augmentative suffixes – e.g. diminutive *-ke* and augmentative *-(t)en* on nouns as well as iterative/attenuative *-elen*/*-eren* on verbs – are highly overrepresented in words with /ʧ/ and ʤ/. The verbal suffix *-elen*/*-eren* carries an attenuative and/or iterative meaning (Booij and Audring 2018), which is testament

[17] See e.g. Rießler (2007: 235–236) on Saami augmentatives, Böhmerová (2011) on Slovak augmentatives, Mutz (2015: 151–152) on augmentatives in various Indo-European languages, Cinque (2015) on Italian diminutives, Wierzbicka (1992: 248) on Russian diminutives, Nikolaeva (2014: 499) on diminutives in various Altaic languages, and Valentine (2001: 186–190) on Nishnaabemwin diminutives and contemptives. Also see Jurafksy (1996) for an insightful theory of the development of the different meanings associated with diminutivity and Grandi and Körtvélyessy (2015) for a helpful cross-linguistic overview of evaluative morphology.

[18] That is, the precise effect of evaluative morphology is to some degree dependent on the semantics of the base word, which appears to be a common phenomenon. Lang (1990: 92), in his description Spanish diminutives, for example, likewise notes that "it is often a question of the base transmitting its semantic import to the suffix rather than the suffix having intrinsic emotive or non-emotive properties of its own". Another, similar phenomenon has been attested in Nama Hottentot (Hagman 1974: 45, quoted in Rijkhoff 2002: 84), where inanimate nouns may be marked for the opposite grammatical gender to emphasise either largeness or smallness, largely depending on whether or not this size is a desirable characteristic of this referent.

to the idea that phonaesthemic alternations are associated with evaluative notions.[19] The augmentative nominal suffix *-(t)en* is likewise associated with expressivity, both in terms of familiarity with and aversion towards a referent (Devos and Vandekerckhove 2005: 57).[20]

Formally speaking, the phonological rules stated above, namely C(C)+VOICE → ʤ /_# and C(C)-VOICE → ʧ /_# suffice to explain the alternations themselves, with the apparent exception of a few pairs, which we will now try to account for. Firstly, the pair *galpen* ~ *tjalpen* (10) appears to run counter to these rules, because orthographic <*g*> is pronounced as a voiced velar fricative in most Southern Dutch dialects. However, this velar fricative is generally laryngealised (or debuccalised) as a voiceless glottal fricative /h/ in West Flemish (including French Flemish) as well as Zealandic Flemish and some western dialects of East Flemish (Devos and Vandekerckhove 2005: 44). The alternation *galpen* ~ *tjalpen* (10) therefore conforms to the phonological rules presented above.

However, the voiceless realisation of orthographic <*g*> would, in turn, run counter to *gewaai* ~ *djawaai* and *gewoel* ~ *djawoel* (19), whose base words likewise start with voiceless /h/ but whose phonaesthemic counterparts are /ʤ/-initial. It should be noted, however, that these base forms both carry the prefix *ge-* (which forms neuter mass nouns from verb stems) and exist alongside the roots *waai* and *woel*, suggesting that post-alveolar /ʤ/ is based on the initial voiced /w/ in *waai* and *woel*.

It is also worth noting that a fair number of phonaesthemically derived words may be realised with either /ʤ/ or /ʧ/, such as *djezeke* (~*tjezeke*) in (18) and some other words not listed above, e.g. *djokken* (~*tjokken*) ‘to push, beat, press, knock’ and *djemen* (~*tjemen*) ‘to charm; to feign, sham’. This is perhaps related to the fact that word-initial alveolar consonants are occasionally devoiced in West Flemish, e.g. *deure* > *teure* ‘(go) on’.

Lastly, there are a number of peripheral operations, some of which are associated with expressivity and some of which constitute variation. Clearly associated with expressivity (see Moravcsik 1978; Regier 1994; Inkelas 2012: 355–356; Körtvélyessy 2016: 156–159) is the partial reduplication found in one pair: *tjafellen* ~ *tjafaffen* ‘to stumble; to walk with a limp, drag one’s feet’ (13). Furthermore, one pair displays vowel mutation of the ‘splish-splash’-type: *dingelen* and *djingelen* (12) may be realised as *dangelen* and *djangelen* respectively, especially in collocation with one another, as in the collocation *djingelen en djangelen* ‘to haggle (continuously, fruitlessly)’.

Other operations are less obviously functionally motivated. Some pairs display an intrusive nasal before a medial consonant, which we find in forms like *tjanfelen* vs. *tjaffelen* (13) and which also occurs in a number of other West Flemish words like *randijze* vs. *radijze* ‘radish’

[19] It is not immediately obvious that attenuation and iterativity are conceptually related. However, as Weidhaas and Schmid (2015: 201) point out, “rather than encoding a global and conclusive type of action, an ongoing, durative activity is conceptualized as consisting of smaller events that occur successively but have less force and intensity than the action proper”. Willemsen (2017) also shows that valence-preserving applicative operations are associated with iterativity as well as increased or decreased intensity and severity.

[20] This suffix is typically associated with proper nouns, e.g. Berten (< Bert, Robert, Albert), Neeten (< René), Janten (< Jan), Fonsen (< Fons) (Devos and Vandekerckhove 2005: 57).

(cf. Goddard 1965, Goddard 1977; Whalen and Beddor 1989).[21] In some cases, the initial affricate may be realised as a fricative [ʃ] or [ʒ], as in *djawoel ~ zjawoel* (19), and, in some pairs, /p/ may be lenited to [f], as in *tjalpen ~ tjalfen* (10).[22]

To summarise, /ʤ/ and /ʧ/ are associated with the evaluative notions of diminutivity and augmentativity, both in terms of the semantic domains in which they are found and in terms of the meaning specialisation present in some phonaesthemic minimal pairs. It can further be observed that various morphological operations that express diminutivity and augmentativity are often attested in /ʤ ʧ/-initial words, which further corroborates the notion that these /ʤ ʧ/-initial words are associated with such evaluative notions. We also saw that various phonaesthemic minimal pairs display some kind of formal variation or anomaly that is either functionally motivated, like partial reduplication, or best accounted for by processes that are also found in other forms, such as initial devoicing and nasal insertion.

4. West Flemish phonaesthemic alternations as a result of language contact

Having discussed the particulars of the function and form of West Flemish phonaesthemic alternations, we can now examine the way this phenomenon emerged. This is of interest not merely because no other Dutch dialect appears to display the same phenomenon but also because there is evidence to suggest that the source of phonaesthemic alternations is, for some languages at least, so-called 'foreigner speech' imitative of a neighbouring language variety. Here we argue that phonaesthemic alternations in West Flemish emerged out of contact with neighbouring Picard.

Picard is spoken in northern France and southern Belgium and has around 11 recognised dialects (Cardoso 2003: 4). Amongst other things, it is characterised by a historical palatalisation pattern of Latin velar consonants that deviates from that found in standard French. Unlike standard French, which already underwent excessive palatalisation of Latin /k/ and /ɡ/ (e.g. *caput* > *chef*; *capra* > *chèvre*) in the Old French period, this palatalisation occurred in neither Old nor Middle Picard. It is only in its transition to the modern dialects that a palatalisation pattern in Picard can be observed. In modern Picard dialects, Middle Picard /k/ either subsists or has developed into /ʧ/ (or, in some exceptional cases, has changed into /g/ or /t/ or disappeared) and Middle Picard /ɡ/ either subsists or has changed into /ʤ/ or /k/ (Flutre 1977: 106, §127). For our purposes, it suffices to point out that, whereas modern standard French has /ʃ/ and /ʒ/ as the 'end products' of its palatalisation process, these largely correspond to the affricates /ʧ/ and /ʤ/ in Picard. As a general rule, Picard /ʧ/ and /ʤ/ never occur word-finally, and never before another consonant. With a few exceptions (which can mostly be explained by analogical change), they normally only occur before a front vowel (Dawson 2004: 257).

The Picard dialects bordering West Flemish, however, are further characterised by an overrepresentation of such affricates, not only with respect to standard French but also with respect to the more central varieties of Picard (Carton 1972). This is particularly the case in the Lille area and in Belgian Hainaut. In these areas, the palatalisation of Middle Picard /k/ and /ɡ/

[21] This is also found in at least one word in standard Dutch: *kinkhoest* 'whooping cough' comes from Early Modern Dutch *kieckhoest*.
[22] This also occurs in standard Dutch to a lesser extent, e.g. in *ginnegappen* vs *ginnegaffen* 'to chuckle, giggle'.

occurs not only before an anterior vowel but – mainly due to changes in the vowel system – also before posterior vowels and even before /ɑ̃/, so that speakers in the Roubaix-Tourcoing area, for instance, pronounce French *quand* 'when' as [ʧɑ̃] (Carton 1972: 449).[23]

Language contact between West Flemish and Picard has led to mutual influence. Romance words nearly always took the southwestern 'Flemish' gateway into Dutch-speaking territory, often in their Picard shape, and evidence of past language contact between Flemish and Picard speakers is provided by phonological, morphological and syntactic features of the Picard dialects of the northern part of Pas de Calais (Ryckeboer 1991, Ryckeboer 1997; Taeldeman 2013: 523, 782).[24]

Against this backdrop, it can hardly be a coincidence that there is a parallel between the overrepresentation of /ʧ/ and /ʤ/ in the northern Picard dialects and the overrepresentation of /ʧ/ and /ʤ/ in West Flemish sound-symbolic words. This is further corroborated by the fact that the West Flemish dialect of Kortrijk, which is spoken right on the Germanic-Romance border, has a number of additional alternations not found in other dialects of West Flemish, which strongly suggests that both the emergence and retention of phonaesthemically derived forms has been stronger where language contact was most intensive. Debrabandere's (1999) dictionary of the Kortrijk dialect, for instance, lists additional lexemes such as *tjoepen* (< *schoepen*) 'to nick, steal', the optional realisation of the interjection *tiens* – roughly meaning 'oh dear' or 'really?' – with an affricate [tjæ̃ ~ ʧæ̃], the optional realisation of *judas* 'bigoted person, traitor' with an affricate [ʒyːdas ~ ʤyːdas], and the swearword *joos* /ʤuɔs/ 'dork, simpleton, miserable person' (< Fr. *joce* < *judocus*).

5. West Flemish phonaesthemic alternations in a cross-linguistic context

How do the phonaesthemic alternations discussed here compare with other phonaesthemic phenomena cross-linguistically? We will argue that, despite a number of vital similarities, they display some striking differences with phonaesthemic alternations found in other languages.

First, it is worth briefly describing how these alternations differ from phonaesthemes in general. The term phonaestheme, first used by Firth (1930), can be defined as a recurrent pairing of sound and meaning across different lexemes. A prime example of a phonaestheme is the English *fl-*, meaning 'moving light', e.g. *flash* and *flame* (Bloomfield 1933: 245). However, as Svantesson (2017: 6) points out, such phonaesthemes generally do not enter into a paradigmatic opposition with either another phonaestheme or a non-phonaestheme such as a phoneme. In other words, although a phonaestheme like English *fl-* 'moving light' is a meaning-bearing unit (Nuckolls 1999: 228), it cannot be substituted with another phonaestheme like *gl-* 'light, vision', e.g. **glash*, **glame*, and the residue which remains after the phonaestheme is removed, e.g. *-ash*, *-ame*, does not re-occur throughout the lexicon with the same meaning (Kwon and Round 2015).

[23] Other examples include *qui* [ʧi] 'who?', *chêne* [ʧɛn] 'oak tree', *quinze* [ʧɛ̃s] 'fifteen', *cul* [ʧyʁ] 'bottom', *queu* [ʧœ] 'taleˑ', *gagner* [ʤɛ̃ni] 'win', *chandeleur* [ʧɑ̃dløːr] 'chandelier' and *jambe* [ʤɑ̃p] 'leg'.

[24] One of the prime examples of intense language contact over a longer period is the West Flemish adoption of French syntactic-paradigmatic rules, such as the rules for the use of relative pronouns in subject and object function, analogous with the use of *qui* and *que* in French (Vercoullie 1885: 29, also see Bennis and van Oostendorp 2013: 667). It is especially this type of borrowing that is associated with intensive, long-term language contact between speaker communities (Durkin 2014: 176).

The phenomenon in question, however, does enter into a paradigmatic opposition, i.e. a phonaesthemically neutral phoneme like /d/ or /t/ can be substituted with a phonaestheme /ʤ/ or /ʧ/ as a means to semantic-pragmatic enrichment of the word. Recall that, towards the beginning of this article, such phonaesthemic alternations were defined as "regular, phonological-based operations that takes place on all relevant segments of a given form, the underived form being neutral and unmarked relative to the derived form."

This definition was based on the findings of a cross-linguistic survey (Willemsen and Hjorth Miltersen 2020) in which it was found that phonaesthemic alternations are (i) formally akin to a regular sound change, and (ii) functionally akin to a derivational morphological process, in particular diminutive and augmentative operations. The fact that they are formally akin to a regular sound change can be demonstrated through the fact that alternations target all relevant segments in a given form regardless of their position, where the phonaestheme is a more marked sound than the phoneme it targets. In the following examples from Diegueño, for instance, the neutral phonemes /ɬ/ and /ɬʲ/ are all substituted with the phonaesthemically marked /l/ and /lʲ/ respectively, in every position, i.e. initially, medially and finally, the voiced counterparts /l/ and /lʲ/ being more marked in Diegueño than /ɬ/ and /ɬʲ/ (Langdon 1971: 151).

(20) *əsaɬʲ* 'hand, arm' ~ *əsalʲ* 'my little hand, arm'
łapəłap 'flat' ~ *lapəlap* 'small and flat'
(see Langdon 1970: 101–102, Langdon, 1971: 153)

The fact that these are functionally akin to derivational morphology – specifically diminutive and augmentative operations – can be demonstrated by the relatively broad range of meanings associated with them compared with regular phonaesthemes like English *fl-*. Alternations like those presented here in Diegueño, as well as in other languages like Reta, Nuu-chah-nulth and Korean, are associated with semantic-pragmatic oppositions such as bright-dark, light-heavy, quick-slow, near-far, and endearing-pejorative (see Nichols 1971: 841) as well as oppositions pertaining to significance, intensity, severity and vulgarity (Willemsen and Hjorth Miltersen 2020).[25]

Functionally, the West Flemish alternations fit this pattern, as they are likewise associated with such concepts. Formally, however, they do not, since only the first consonant or consonant cluster of any given word is targeted. For instance, while in the Diegueño forms in (20) all relevant segments were targeted, for a West Flemish word like *tateren* 'to chatter, babble, talk excessively', its phonaesthemic counterpart is *tjateren*, not **tjatjeren*, i.e. only the initial consonant is targeted. This thus appears to run counter to Willemsen and Hjorth Miltersen's (2020) observation that phonaesthemic alternations target all relevant segments in a given form.

On the other hand, for those languages where it is known that phonaesthemic alternations emerged out of contact, it is clear that they constitute a phonological 'copy' of the donor language, i.e. the socialisation of a (perceived) difference in pronunciation. In Reta, for example, neutral /l/ changes to phonaesthemically marked /r/ regardless of its position in the lexeme, under the influence of foreigner speech imitative of the closely related neighbouring

[25] Regular phonaesthemes like English *fl-* are not operations but rather part of a network of associations between sound and meaning throughout the lexicon (e.g. Bolinger 1950; Firth 1964: 185), mostly a restricted set of lexemes with certain semantic commonalities, and are therefore almost by definition associated with a specific meaning.

language Blagar. Importantly, however, Blagar pronunciation is characterised by a prevalence of /r/ in initial, medial and final environments, as a result of which /l/ may also be substituted with /r/ in all these positions.

Similarly, in Nuu-chah-nulth, phonaesthemic alternations are likewise the result of the socialisation of imitative foreigner speech (Sapir 1958 [1915]: 189–195). Alternations between neutral /ħ/ and phonaesthemic [χ] or [χʷ], for example, can be attributed to contact with neighbouring languages like Makah and Nitinaht, which are said to have retained the proto-forms [χ χʷ] (seen as characteristic by speakers of Nuu-chah-nulth), whereas, in Nuu-chah-nulth itself, these had already changed to /ħ/ (Jacobsen 1969: 150–151). Importantly, in Makah and Nitinaht, these sounds are also found in all environments, and, as a result, phonaesthemic alternations in Nuu-chah-nulth also target phonemes in all environments.

In the case of West Flemish alternations, however, the alternations are based on Picard phonology, which is characterised by a prevalence of palatalisation of word-initial consonants only, not medial or final consonants. In other words, the phonological habit of palatalisation is imitative of Picard phonology only in those environments where it is perceived as typical by speakers of West Flemish.

To this we might add the fact that the phonological rules of a language may overrule the occurrence of a phonaestheme in certain positions. For example, phonaesthemic alternations in Korean are characterised by aspiration and tensing of consonants (see Kwon & Round 2015) in all positions except finally, though this is due to a phonological rule prohibiting aspirated and tense consonants from occurring in non-initial or non-medial position (Sohn 1994: 439). Likewise, in West Flemish, /ʧ ʤ/ never occur in non-initial position within a root; these affricates are completely unattested in final position, and, where they occur medially in some form, this form can usually be analysed as monomorphemic, either in the donor language in case of a loan, such as *nondedju!* ‘damnit!’ (cf. Fr. *nom de Dieu*), or synchronically by a morphological process, e.g. the diminutive forms in (3). In other words, neither the phonology of West Flemish nor the phonological habits of Picard on which its phonaesthemic alternations are based allow for the occurrence of /ʧ ʤ/ in non-initial position.

To finish our discussion of West Flemish phonaesthemic alternations in cross-linguistic context, Willemsen and Hjorth Miltersen (2020) also lay out the differences between phonaesthemic alternations and derivational morphology in formal terms. They argue that the main difference between these processes is that phonaesthemic alternations are phonologically based in targeting segments regardless of their position in a form, whereas derivational morphology is not. Since alternations in West Flemish only target initial segments, one might wonder how this phenomenon differs from derivational morphology – in particular consonant mutation, which likewise tends to target single consonants in certain environments.

However, as Merrill (2018: 47) points out, a requirement for the development of consonant mutation is that a sound change operates in a domain larger than a single morpheme. More specifically, the origin of consonant mutation is almost always a sound change which affects a consonant in the environment of an adjacent sound. In other words, consonant mutation tends to arise out of sandhi (e.g. for Celtic, see Morris-Jones 1913: 161–176 and Hickey 1995, for

Numic, see Merrill 2018: 13), resulting in mutations that appear to be phonologically motivated as a type of assimilation (e.g. voicing, nasalisation, etc.).

Indonesian, for example, has a prefix *meN-*, which has a variety of functions, one of which is the formation of 'go to'-verbs out of nouns referring to a location (Sneddon 1996: 65), the nasal of which assimilates with voiceless obstruents, so that e.g. *seberang* 'opposite side' > *menyeberang* 'go to the opposite side' as a result of *s* > *ny*. In colloquial Indonesian, however, such verbs may be reduced, so that *menyeberang* is realised as *nyeberang* (Stevens and Schmidgall-Tellings 2010: 885), resulting a minimal pair *seberang* - *nyeberang*, which only differs by a single consonant but which is clearly the result of one consonant affecting another across morpheme boundaries.

This is obviously not the case for West Flemish phonaesthemic alternations, which are characterised by substitution of an initial segment without the influence of any neighbouring segments. In other words, like those found in other languages (Willemsen and Hjorth Miltersen 2020), West Flemish phonaesthemic alternations are formally phonological-based, albeit restricted to a single environment.

In sum, West Flemish phonaesthemic alternations are functionally similar to those found in other languages, in that the semantic-pragmatic effects they are associated with are akin to those of diminutive and augmentative operations. Formally, however, they are unique in only targeting root-initial consonants. Despite being environment-dependent, however, these alternations have little in common with morphological processes such as consonant mutation – in fact, the restriction of such alternations to root-initial consonants appears to be the result of the adoption of phonological habits of Picard and a phonological rule prohibiting /ʧ/ and /ʤ/ from occurring in non-initial position in morphologically simplex forms.

6. Summary

In this article, we aimed to add to the growing body of literature on phonaesthesia by presenting a number of cross-linguistically rare and typologically unusual alternations between a neutral base word and a phonaesthemically derived word, or phonaesthemic alternations, in which an initial consonant is substituted with /ʧ/ or /ʤ/. We also showed that, compared with other Dutch dialects, these affricates are strikingly prevalent in West Flemish and that this appears to be the result of a number of individual innovations on the one hand and contact with Picard on the other.

We then demonstrated that, as in other languages, these phonaesthemic alternations are associated with diminutivity and augmentativity. Formally speaking, however, West Flemish phonaesthemic alternations differ from those found in other languages in only targeting root-initial consonants. We argued that, although the differences with some morphological operations such as consonant mutation are not immediately obvious, they cannot be described as a morphological operation. Rather, the restriction of such alternations to root-initial consonants appears to be the result of copying a phonological habit of speakers of Picard, which is likewise characterised by a prevalence of initial palatalisation, as well as a phonological rule prohibiting the non-initial occurrence of /ʧ/ and /ʤ/ in mono-morphemic words.

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