

Modal Categories in Contact: The Case of Heritage Ambon Malay in the Netherlands

Francesca R. Moro
Radboud University, Nijmegen

ABSTRACT

This article reports the preliminary findings of a study examining the semantics of modal verbs in heritage Ambon Malay, a language variety spoken by Dutch-Ambon Malay bilinguals in the Netherlands whose dominant language is Dutch. In this study, I examined the use of the necessity modal *musti* [must] in the speech of heritage language (HL) speakers and compared it to that of monolingual homeland Ambon Malay speakers and monolingual Dutch speakers. The findings show convergence between the modal system of the heritage language (Ambon Malay) and that of the dominant language (Dutch). More precisely, the heritage necessity modal *musti* [must] has extended its semantic range to resemble its Dutch equivalent *moeten* [must.] I discuss three main factors that account for this innovation, namely (i) psychological factors – semantic convergence is one of the strategies adopted by bilinguals to reduce their cognitive load, (ii) universal principles of language development in contact settings – conceptual naturalness facilitates semantic influence from Dutch, and (iii) social factors – the language history of HL speakers shows that the innovation correlates with type of bilingualism and amount of exposure to Ambon Malay. Finally, the findings of this study support the Functional Discourse Grammar hierarchy of language change and, to a lesser extent, the typological hierarchy of Matras (2007).

KEYWORDS: *Modality, Heritage Language, Semantic Extension, Malay, Dutch*

1. INTRODUCTION

This article reports the preliminary findings of a study examining semantic convergence in the domain of modal expressions. Scholars working in various frameworks (typological, theoretical and Functional Discourse Grammar) agree that modality is a category susceptible to change, especially in language contact situations (see Section 5). Modal auxiliaries are well suited for a study on contact-induced semantic change for two reasons. First, modal auxiliaries are polysemous and we know that bilingual speakers tend to replicate polysemy patterns from one language to the other (see Section 3). Second, modal expressions seem to be vulnerable in language contact situations (see Section 5). Lexical borrowing (Matras, 2007; Hansen, 2000), semantic convergence (Bao, 2010), and contact-induced grammaticalization (Gast & van der Auwera, 2012; Ziegeler, 2014) are frequent phenomena in the domain of modality. An example of semantic convergence is that of *must* in Singapore English, which has reduced its range of meanings to convergence in its function and distribution to the Chinese and Malay equivalents. Bao (2010) shows that in Singapore English, *must* has become predominantly deontic in contrast with the strong epistemic bias in other English varieties (British or American English). The reason for this is that in the substrate languages, namely Chinese and Malay, the modals associated with *must* (*bixu* [must] and *mesti* [must] respectively) have only, or predominantly, the deontic meaning.

Following previous findings in the domain of modality, this study seeks to contribute to our understanding of heritage language phenomena by addressing three general questions:

- 1) How do HL speakers of Ambon Malay in the Netherlands (Dutch-Ambon Malay bilinguals) deal with modal expressions in their heritage language?
- 2) Does the category of modality in heritage Ambon Malay show innovations?
- 3) If yes, what are these innovations and what are the factors that can account for them?

The answers to these questions are provided by a qualitative study on the use of the modal auxiliary [must] by bilingual HL speakers and by monolingual Ambon Malay and monolingual Dutch speakers. The findings show that the heritage necessity modal *musti* [must] has undergone semantic extension to resemble its Dutch equivalent *moeten* [must]. The heritage modal *musti* [must] has acquired a participant internal meaning (obligation due to a source internal to the participant, see Section 4) which is absent in the homeland baseline language. The study argues that this type of semantic convergence is driven by psychological factors, namely factors pertaining to the individuals in question, by universal principles of language development in the contact settings, and by social factors relating to the bilingual individuals' language history (see Section 3). In addition, the findings of the present study seem to lend support to the Functional Discourse Grammar hierarchy of language change and, to a lesser extent, the typological hierarchy of Matras (2007), although no robust conclusions can be drawn from the data.

The article is organized as follows: a brief description of heritage Ambon Malay in the Netherlands is given in Section 2. Section 3 discusses the psychological strategies, universal principles and social factors responsible for bilingual language change. In Section 4, I introduce the main notions and terminology related to modality and in Section 5, I give an overview of studies on modality in language contact. In Section 6, I present one case study concerning the modal *musti* [must] and discuss the findings. Section 7 concludes the article.

2. HERITAGE AMBON MALAY IN THE NETHERLANDS

Heritage Ambon Malay is the language spoken by the descendants of 12,500 Ambon Malay speakers who arrived in the Netherlands in the 1950s after the decolonization of Indonesia. These speakers came predominantly from the Central Moluccas and spoke Tangsi Malay, also known as Barracks Malay. This was a divergent form of Ambon Malay spoken in the military barracks of the Dutch East Indies army in the Indonesian archipelago. Structurally, Tangsi Malay was similar to other Malay varieties, but its lexicon was heavily influenced by Javanese and Dutch.

Until at least the 1960s, the Moluccan immigrants were housed in camps in rather isolated areas of the Netherlands. This housing situation and the isolation strengthened the mutual links between the Moluccan inhabitants and contributed to the maintenance of the language (Veenman, 1994, p. 13). In the early 1960s, the Dutch government closed the camps and moved the Moluccans to newly built wards [*woonwijken*] on the outskirts of small towns. This process, however, took a long time, and the last camp was closed in 1989.

Descendants of these immigrants in the Netherlands now number some 40,000 people, most of whom speak Ambon Malay as a heritage language (Veenman, 1994, p. 45). The majority of Ambon Malay HL speakers grew up as simultaneous or early Dutch-Malay bilinguals. In the heritage variety of Ambon Malay, a number of changes have occurred, which are due to the HL speakers' path of language acquisition, and to their intense contact with Dutch (Tahitu, 1989; Huwaë, 1992; Lekawael, 2011; Moro, 2014; Moro & Klammer, 2015; Moro, in press (a) and (b)).

3. PSYCHOLOGICAL STRATEGIES, UNIVERSAL PRINCIPLES AND SOCIAL FACTORS

Psychological factors driving change in heritage languages include bilingual optimization strategies (Muysken, 2013). Silva-Corvalán (1994, p. 207) points out that “in language contact situations bilinguals develop strategies aimed at lightening the cognitive load of having to remember and use two different linguistic systems.” One strategy for reducing the cognitive load is to increase the similarity between the two linguistic (sub-)systems. This phenomenon, known as linguistic convergence, begins when bilingual speakers establish ‘interlingual identifications’ (Weinreich, 1953; Gast & van der Auwera, 2012), ‘equivalence relations’ (Heine & Kuteva, 2005), or ‘analogy’ (Winford, 2012, pp. 448-452) between forms (words or structures) and categories across the two languages. This optimization strategy eventually leads to greater similarity between the heritage language and the dominant language at various linguistic levels. Convergence at the syntactic level is well attested in heritage speakers. An increasing number of studies have shown that HL speakers tend to follow the syntactic preferences of the dominant language. For instance, they prefer SVO order over other word orders¹ (Albirini et al., 2011; Onar Valk, 2015); analytic possessive constructions over synthetic constructions (Muysken, 2005; Boumans, 2006); finite subordination over non-finite subordination (Onar Valk, 2015); and resultative prepositional phrases over serial verb constructions (Moro, 2014).

With regard to semantic convergence, it is plausible that the two lexicons of bilingual speakers are also interconnected. The studies surveyed in Jarvis and Pavlenko (2007) and in Pavlenko (2011) provide evidence that bilinguals tend to blend the semantic and conceptual knowledge of their two languages in order to achieve higher processing economy. In their study on naming patterns in simultaneous Dutch-French bilinguals, Ameel et al. (2005, p. 79) concluded that:

Through the mutual influence of the languages, the category boundaries in the two languages move towards one another and hence diverge from the boundaries drawn by the native speakers. [...] However, the convergence of the two naming patterns on one naming pattern suggests that bilinguals do not only satisfy linguistic constraints, but also individual cognitive constraints: it is less demanding on the limited resources of memory to store only one set of mappings between objects and names.

After having identified two equivalent forms, bilingual speakers tend to restructure the form-meaning mappings in their languages in order to create a system that incorporates the features of both languages. For instance, HL speakers of Turkish in the Netherlands have transferred the polysemous pattern of the Dutch verb *nemen* [take] to the Turkish verb *almak* [take], so they use the Dutch-like expression *tren almak* [take the train] rather than the Turkish convention *trene binmek* [get on the train] (see Backus et al., 2011, p. 742).

Besides psychological strategies, semantic convergence may be driven by universal principles of language development in contact settings. According to Enfield (2003), semantic extensions that are very common cross-linguistically are driven by universal principles that he subsumes under the label ‘conceptual naturalness.’ Conceptual naturalness refers to semantic extensions that are cognitively easy to make and that are therefore attested in many languages. In fact, typological frequency can be considered as an index of conceptual naturalness (Gentner & Bowerman, 2009). For instance, it is common for languages to have one causative marker to indicate both causation and permission, as these two meanings are conceptually similar. The conceptual naturalness of this extension is further supported by the fact that, for instance, English children often substitute *make* for *let* and vice versa (Gentner & Bowerman, 2009, p. 468). As pointed out by Enfield (2003, p. 356), “the greater the naturalness of a semantic extension or structural extension, the more readily the *idea of making that extension* may be borrowed from one language to another”. Furthermore, if an extension is relatively natural for the human mind, it is likely that many individuals will come up with it independently, and this in turn contributes to the propagation of the extension in the speech community.

Finally, social factors determine the amount and the destination of contact-induced changes, such as semantic convergence. In bilingual (heritage) communities, the emergence of linguistic innovations is usually related to factors such as age of onset of bilingualism (sequential versus simultaneous) and parental language input (Raschka, Wei & Lee, 2002; Montrul, 2008; Irizarri van Suchtelen, 2014). Montrul (2008) reports a number of studies showing that simultaneous bilingual HL speakers make more errors than sequential bilinguals, and she argues that this is due to the reduced amount of input received in the heritage language during childhood. Parental language is also an important predictor of linguistic innovations. For instance, Raschka, Wei and Lee (2002) report that Cantonese HL speakers whose parents consistently and exclusively use Cantonese have good levels of language ability, whereas HL speakers whose parents use Cantonese and English interchangeably have a lower level of language proficiency. Similar results are reported by Irizarri van Suchtelen (2014) in relation to Dutch-Spanish bilinguals in the Netherlands.

To summarize, semantic convergence is primarily driven by cognitive motivations. By increasing the similarity between the two languages, bilingual speakers try to lighten the cognitive load of having to remember and use two different linguistic systems (Silva-Corvalán, 1994). The first step toward convergence is that bilingual speakers interlingually identify signs and categories across the two languages. Once they have identified two equivalent signs, they may allow one sign to semantically converge to the other. The process of semantic convergence (which follows signs identification) may be further reinforced by universal principles of conceptual naturalness. Social factors play a role to the extent that speakers who were exposed to or who frequently use the two languages alongside each other may be the initiators of such cognitively-driven changes.

4. MODALITY: BASIC NOTIONS AND TERMINOLOGY

Every modal expression (i.e. an auxiliary verb or an adverb) consists of two components: a ‘modal meaning’ (or category) and a ‘modal sense’ (Palmer, 2001; Nuyts, 2005; de Haan, 2006; Boland, 2006). The notion of ‘modal meaning’ includes three main semantic categories: the epistemic, the deontic and the dynamic category (Palmer, 2001; Boland, 2006, pp. 70-73).

Epistemic modality is concerned with the speaker's opinion toward the truth of the proposition, as illustrated in (1) below. Deontic modality is concerned with obligations and regulations, as illustrated in (2). Dynamic modality is concerned with physical necessity or possibility that follows from the circumstances, as illustrated in (3). The category of dynamic modality is further subdivided into two subcategories, namely participant-internal and participant-external modality, depending on whether the source of the modality is internal to the participant, as in (3a) or external, as in (3b) (Boland, 2006; van der Auwera, et al., 2009).² Thus, for purposes of the present study, I adopted a four-way categorization: epistemic, deontic, (dynamic) participant-internal and (dynamic) participant-external modality.

- (1) Epistemic modality *Given all those wet umbrellas, it **has to** be raining*³
- (2) Deontic modality *According to the hospital regulations, visitors **have to** leave by six pm*
- (3) Dynamic modality:
- a. Participant-internal *Excuse me. Given the current state of my nose, I **have to** sneeze*
- b. Participant-external *Given the choices of modes of transportation and their speeds, to get home in time, you **have to** take a taxi.*

We have seen that modals can have different 'modal meanings', but modals can have also different 'modal senses'. The two basic values in the category of 'modal sense' are possibility and necessity (Boland 2006, p. 69). Nuyts (2005, p. 16) states that only dynamic modality can be characterized in terms of these two binary values, while epistemic and deontic modality are better characterized in terms of a scale including more fine-grained distinctions such as 'probability' (see also Boland 2006, p. 69). In this article, I will consider only the two values of possibility and necessity, for two reasons. First, this study adopts the categorization and the modal map of van der Auwera et al. (2009), which are based on this binary opposition; second, this study is mostly concerned with the category of dynamic modality, which is 'strictly binary' (Nuyts, 2006, p. 16).

As illustrated by the verb *have to* in examples (1)-(3), the same modal auxiliary can have different 'meanings' depending on the linguistic and extra-linguistic context, in other words they are polysemous. The polysemy of modal verbs is a very common phenomenon cross-linguistically and it is accounted for by the fact that the meanings have developed historically, one from the other, following a similar grammaticalization path (Bybee et al., 1994). As nicely stated by van der Auwera et al. (2009, p. 277), "polysemy results from diachrony." The process of semantic change usually starts with a verb with a full lexical meaning, such as 'have' or 'know,' which develops into a marker of dynamic modality (participant-internal or/and participant-external), and subsequently into a marker of deontic modality; finally the marker can also acquire an epistemic meaning (Bybee et al., 1994; van der Auwera, et al., 2009).

5. MODALITY IN LANGUAGE CONTACT

Of all TMA (tense/mood/aspect) categories, modality seems to be one of the most susceptible to contact-induced change (see Matras, 2007, 2009, 2011; Friedman, 2012, p. 399). This section summarizes different frameworks (typological, theoretical, Functional Discourse

Grammar) that have been proposed by scholars in order to account for the vulnerability of modal (sub)-categories.

According to Matras (2007; 2011), contact phenomena are more frequent in the category of modality than in the categories of aspect and tense. This is represented in the borrowability hierarchy in (1) (Matras, 2007, p. 46; 2011, p. 220):

- (1) modality > aspect > future tense > (other tenses)

The category on the left of the arrow is more frequently affected by contact than the category on the right. Here frequency refers to the number of languages that show lexical or structural borrowing of a certain category. The fact that there is a high number of languages showing contact phenomena in the category of modality is an indication that modality does not require intense contact to undergo contact-induced change⁴ (Matras, 2007, pp. 31-33).

A number of explanations have been proposed for why the category of modality is the most vulnerable in contact situations. According to Matras (2007, 2011), modality is vulnerable because it correlates with low ‘speaker’s control’. The use of a deontic or an epistemic modal expression reveals to the listener that the speaker has low control over the situation, either because there is an external force acting upon the participant or because s/he is talking about a state of affairs that goes “beyond the speaker’s domain of secure knowledge” (Matras, 2011, p. 222). The cognitive load of processing ‘high risk operators’, such as modals, makes it difficult for the bilingual to inhibit the ‘other’ language and therefore transfer effects are to be expected. Speaker’s control is also taken by Matras (2007, p. 45) to explain why some modal sub-categories are more likely to be borrowed than others, as illustrated by the hierarchy in (2):

- (2) Obligation > necessity > possibility > ability > desire

Obligation (deontic modality) and necessity (epistemic modality) are more likely to be borrowed than ability or desire (dynamic modality) because in the case of the former, the source of modality is usually participant external (low speaker control), whereas in the case of the latter, the source is typically participant-internal (high speaker’s control). As Matras (2009, p. 187) stated, “the greater the involvement of an external force in determining the modality of the proposition, the weaker the speaker’s control over the truth and accuracy of that proposition;” and the weaker the speaker’s control, the stronger the likelihood of borrowings.

The other two views that account for the vulnerability of modality make a distinction between different sub-categories and claim that the category of modality is not affected across the board but, rather some values are more vulnerable than others. Researchers working in the theoretical framework of the Interface Hypothesis (Sorace, 2011; Massery & Fuentes, 2014) consider deontic modality less vulnerable than epistemic modality because the appropriate use of subjunctive mood in deontic contexts requires only syntactic knowledge, whereas the appropriate use of subjunctive mood in epistemic contexts requires syntactic knowledge as well as knowledge of contextual information external to the grammar. In Spanish, deontic modal verbs are always followed by a verb in the subjunctive mood (e.g., *Elena recommends Sofia to study*_{SUBJ} *linguistics*), while epistemic modal verbs can be followed either by the

indicative mood or the subjunctive mood depending on contextual information available to the speaker, with the indicative signaling high commitment and the subjunctive signaling little or no commitment (cf. Silva-Corvalán, 1994). As discussed in Sorace (2011), the integration of external information poses a challenge to bilingual speakers, and as a consequence, epistemic modality is likely to be more problematic than deontic modality. The Interface Hypothesis focuses mainly on the distinction between deontic and epistemic modality and it is not clear what the predictions are for dynamic (participant-oriented) modality.

In the framework of Functional Discourse Grammar, Boland (2006, pp. 91-115) and Hengeveld (2011, p. 582) have proposed a hierarchy of modal categories that are likely to undergo grammaticalization, as illustrated in (3):

- (3) Participant-oriented modality > deontic > epistemic modality

This hierarchy predicts that participant-oriented modality, which expresses “a relation between a participant in a state-of-affairs and the realization of that state-of-affairs,” is more likely to change than epistemic modality (Hengeveld, 2011, p. 583). The rationale behind the hierarchy is that modal categories that have scope only over the predicate (they describe a state of affairs) are more likely to change than categories that have scope over the whole proposition (they describe the mental construct about the state of affairs). The prediction of the hierarchy is based on the assumption that semantic scope can only increase in the process of grammaticalization (Boland, 2006, p. 105). Although Function Discourse Grammar is not a theory of language contact, we know that grammaticalization can be contact-induced, and therefore the path of change proposed by Hengeveld (2011) can be triggered by language contact.

To summarize, researchers working in different frameworks (typological, theoretical, Functional Discourse Grammar) agree that modality is a domain vulnerable to change. However, the frameworks make different predictions regarding modal sub-categories. For Matras (2007, 2009, 2011), modals expressing obligation and necessity are more likely to undergo change (i.e., to be borrowed) because they correlate with low speaker control; in the theoretical framework, epistemic modals are more likely to undergo change (i.e., to pose a challenge to bilingual speakers) because they are governed by pragmatic constraints to a greater extent than deontic modals; in the framework of Functional Discourse Grammar, participant-oriented modals are more likely to change (i.e., undergo grammaticalization) because they correlate with lower semantic scope.

6. THE PRESENT STUDY: MODALITY IN HERITAGE AMBON MALAY

The research question underlying this study is how HL speakers of Ambon Malay, who are bilingual in Dutch and Ambon Malay with Dutch as their dominant language, express modality in their heritage language. The question is whether HL speakers of Ambon Malay maintain the two semantic sub-systems separate or if the two appear to converge. In order to find out possible innovations due to semantic convergence, I investigated the semantics of the necessity modal *musti* [must]. The Ambon Malay modal auxiliary *musti* [must] and the Dutch modal auxiliary *moeten* [must] are similar in two ways. First, they lexicalize the sense of necessity. Second, their basic default meaning is the participant–external (deontic) meaning. The difference between Ambon Malay *musti* [must] and Dutch *moeten* [must] is that *moeten* is more polysemous than *musti*. In specific linguistic or extra-linguistic contexts, *moeten*

[must] can acquire other readings, such as the participant-internal and the epistemic reading (see Foolen & de Hoop, 2009), while *musti* [must] cannot (or only to a very limited extent, see Tjia, 1992; van Minde, 1997).

In Ambon Malay, the modal auxiliary *musti* [must], or its variant form *musi*, expresses only deontic and participant-external dynamic necessity (Tjia, 1992, p. 47; Van Minde 1997, p. 192). It is used when external forces compel the participant to perform the predicate action. The statement in (4) is an example of participant external (deontic) necessity because the modal source comes from the social norms:

CONTEXT: The interviewer asks the participant about the situations in which he speaks Ambon Malay and the situations in which he speaks other languages.

- (4) *Di tanpa kerja tu kan katong musti pake bahasa Indonesia*
 LOC place work D.DIST you.know 1PL must use language Indonesia
 ‘At work we have to speak Indonesian.’ (Homeland speaker)⁵

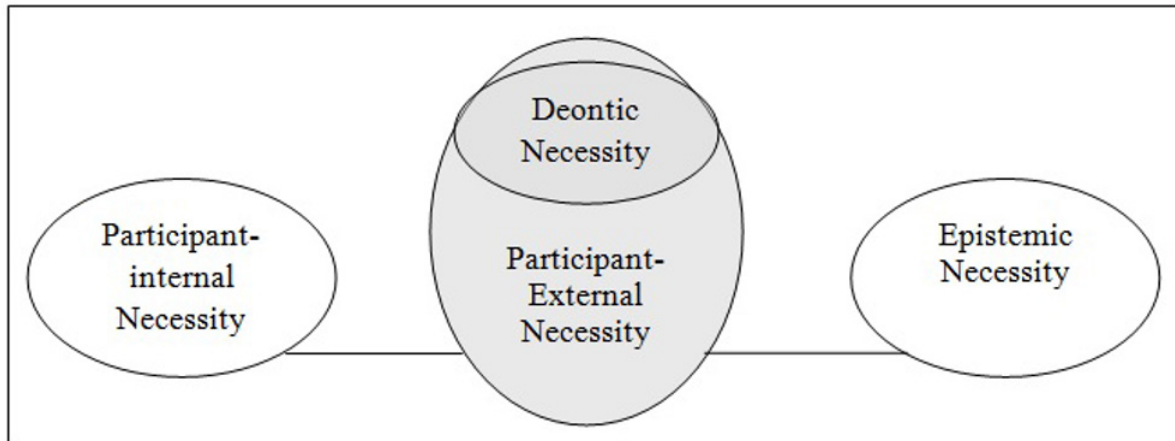
To the best of my knowledge, participant-internal necessity is not expressed by *musti* [must] in Ambon Malay. In the present data, there is only one example of participant-internal necessity with *musti* [must], as illustrated in (5). In the example, the modal *musti* [must] is preceded by the verb *rasa* [feel]003A

CONTEXT: The participant is describing a set of videos in Ambon Malay and has difficulty retrieving lexical items. The interviewer (who is a homeland speaker of Ambon Malay) tells him that he can use the Dutch equivalent word.

- (5) *Kalo J. rasa musti pake bahasa Belanda pake aja*
 If J. feel must use language Netherlands use just
 ‘If you (J. is a personal name) feel that you have to (need to) speak Dutch, just use Dutch.’ (Homeland speaker)

If the verb *rasa* [feel] is omitted, the sentence will automatically lose the participant-internal interpretation (‘if you have to speak Dutch [because it is required by some external norms], just use Dutch’). This shows that *musti* cannot convey the participant-internal meaning by itself (unless it interacts with other elements).

In Ambon Malay *musti* does not express epistemic modality. To express epistemic necessity, the adverb *pasti* [surely] is used (Van Minde, 1997, p. 79). In order to visualize the meanings of *musti* [must] I adopted the semantic map of van der Auwera and Plungian (1998). The gray areas in the map in Figure 1 represent the modal space covered by *musti* [must].

Figure 1. The Modal Space of the Ambon Malay Modal Auxiliary *musti* [must]

In contrast to Ambon Malay *musti* [must], the meaning of Dutch *moeten* [must] can shift greatly according to the context in which it occurs. The basic default interpretation of Dutch *moeten* [must] is the participant external and deontic interpretation (Foolen & de Hoop, 2009, p. 306), as illustrated in (6). If (6) is uttered out of context, language users will infer that there is a source external to the participant forcing him to swim (i.e., a medical prescription).

- (6) *Hij moet zwemm-en*
 3SG.M must.3SG swim-INF
 ‘He must swim.’ (Foolen & de Hoop, 2009, p. 306)

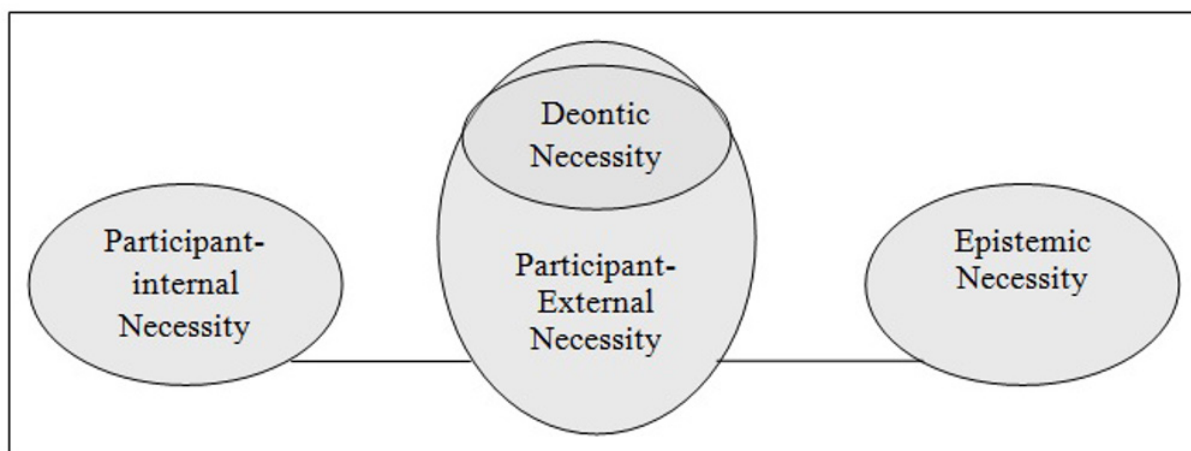
When *moeten* [must] occurs with a predicate denoting a bodily activity (such as ‘pee’ or ‘sneeze’), it acquires the participant-internal necessity meaning, as illustrated in (7).

- (7) *Hij moet pless-en*
 3SG.M must.3SG pee-INF
 ‘He must pee.’ (Foolen & de Hoop, 2009, p. 308)

Finally, *moeten* [must] can also have an epistemic interpretation when it occurs with verbs in the progressive aspect (Foolen & de Hoop, 2009), as illustrated in (8).

- (8) *Hij moet aan het zwemm-en zijn*
 3SG.M must.3SG at ART.DEF swim-INF be.INF
 ‘He must be swimming.’ (Foolen & de Hoop 2009, p. 310)

To summarize, the modal space of *moeten* [must] covers four modal values, namely deontic, (dynamic) participant external, (dynamic) participant-internal and epistemic. This is represented in Figure 2. Ambon Malay *musti* [must] is rather specific because it covers only the participant-external (deontic) meaning (Figure 1), while Dutch *moeten* [must] is polysemous because it covers also the participant-internal and the epistemic meanings (Figure 2). The question is how HL speakers of Ambon Malay will realize these two semantic sub-systems.

Figure 2. The Modal Space of the Dutch Verb Auxiliary *moeten* [must]

Hypotheses

In this situation, there are two possible hypotheses: (1) HL speakers maintain two distinct semantic sub-systems, one for the dominant language and one for the heritage language; or (2) they have one integrated sub-system that results from semantic convergence. Previous studies on the topic, such as Ameel et al. (, 2005) Jarvis and Pavlenko (2007), and Pavlenko (2011) support the second hypothesis and predict semantic convergence. This prediction is borne out by the data (see Table 1), which show that *musti* [must] in heritage Ambon Malay has extended its meaning range to cover roughly the same semantic space of Dutch *moeten* [must]. Further evidence that Dutch-Ambon-Malay bilinguals have one integrated sub-system that results from semantic convergence between their two languages comes from the language history of the speakers (see Table 2). As we will see below, the innovative use of *musti* [must] is attested only in simultaneous bilinguals, namely in those HL speakers who had the highest level of exposure to the dominant language in childhood.

Participants

To test empirically the two hypotheses, I investigated the use of *musti* [must] in four groups of adult speakers: 1) a group of HL speakers of Ambon Malay in the Netherlands who grew up as simultaneous or sequential bilinguals (n=32); (2) a group of homeland speakers of Ambon Malay living in Ambon, Indonesia, with no knowledge of Dutch (n=27); (3) a group of first-generation speakers of Ambon Malay who arrived in the Netherlands after puberty and therefore qualify as late bilinguals (n=6); and 4) a group of Dutch speakers with no knowledge of Ambon Malay (n=10).⁶ The bilingual heritage group represents the test group, while the Ambon Malay monolinguals, the Dutch monolinguals and the late bilinguals constitute the control groups. The HL speakers were further divided into two groups according to the amount of exposure they had to Ambon Malay: 1) speakers who had either predominantly Dutch parental input or mixed input (Ambon Malay and Dutch) were classified as the 'LOW EXPOSURE' group, while speakers whose parents both spoke predominantly Ambon Malay were categorized as the 'MEDIUM-HIGH EXPOSURE' group (see Table 2 in Results section, below).

Method

Data were elicited orally by playing a video stimulus on a laptop in front of the participant, who was instructed to describe in the heritage language ‘what is going on.’ The video stimulus depicted a participant-internal context. Recall that this modal meaning is normally expressed by Dutch *moeten* [must] but not by Ambon Malay *musti* [must]. The participant-internal context was provided by a video clip showing a man standing next to a table on top of which there is a vase with flowers. After a few seconds the man sneezes (once). The force compelling a person to sneeze is regarded as internal because sneezing is the reaction of the body to an irritating stimulus. In Dutch, the bodily activity ‘sneeze’ is likely to trigger the use of a modal indicating participant-internal necessity. In Ambon Malay no modal is expected because the participant-internal interpretation is understood from the context. The elicitation material used to collect data consisted of short video clips depicting events of various kinds (i.e., children playing with a ball on a grass field; a man washing an apple and then eating it; a boy who cuts a girl’s hair). This type of material does not usually give rise to expectations, beliefs or hopes, which are at the basis of epistemic statements. Nevertheless, the video clip of the man who sneezes did yield interesting results, to which we now turn.

Results

The results of the ‘sneeze’ video clip description are summarized in Table 1 and further discussed below.

Table 1.

Number of Speakers Who Used a Necessity Modal in the Description of the ‘Sneeze’ Video Clip

Group (total number of speakers)	<i>no modal</i>	<i>musti</i> [must]	<i>moeten</i> [must]
Homeland speakers (27)	33 100%	0 -	- -
First-generation speakers (6)	6 100%	0 -	- -
HL speakers (32)	26 81.2%	6 18.7%	- -
Monolingual Dutch speakers (10)	6 60%	- -	4 40%

No homeland or first-generation speaker of Ambon Malay used the modal *musti* [must] (or any other modal) to describe the act of sneezing. Even though homeland and first generation speakers clearly understood that the sneeze was due to an internal (physical) force, this state of affairs did not trigger the use of *musti* [must] in their descriptions. This is illustrated in examples (9) from a homeland speaker and (10) from a first-generation speaker:

- (9) *Ada vas bunga dan dia bersin*
 EXIST vase flower and 3SG sneeze

oh iya dia ciong bou bunga mangkali la dia bersin
 oh yes 3SG smell smell flower maybe then 3SG sneeze

‘There is a pot of flowers and he sneezes, oh yeah he smelled the flowers maybe then he sneezed.’ (Homeland speaker)

- (10) *Ada satu nyong berdiri di dekat bunga satu pot bunga*
 EXIST one young.man stand LOC near flower one vase flower

lalu mungkin dari bau bunga lalu ia bersin
 then maybe from smell flower then 3SG sneeze

‘There is a young man standing next to some flowers, a vase with flowers, then, maybe due to the flowers, he sneezes.’ (First generation speaker)

In the Ambon Malay heritage group, six speakers out of 32 used the modal *musti* [must]. An illustration is given in (11).

- (11) *Clip ke-dua ana laki musi bersin*
 clip ORD-two child male must sneeze

dari bunga yang ada di meja
 from flower REL EXIST LOC table

‘(In) the second clip, the boy has to sneeze due to the flowers on the table.’ (HL speaker)

In the Dutch group, four speakers out of ten used the modal *moeten* [must] in the video description, as illustrated in example (12):

- (12) *Hij moet niez-en het zou kunn-en dat*
 3SG.M must.3SG sneeze-INF ART.DEF should can-INF that

die allergisch is voor de bloem-en
 REL allergic be.3sg for ART.DEF flower-PL

‘He has to sneeze, it could be that he is allergic to flowers.’ (Dutch speaker)

Even though *musti* [must] is used with the participant-internal meaning only by six HL speakers out of 32, this use is highly innovative if we consider that no homeland or late bilingual speaker in the Netherlands did so.

The data presented above show that, at least for some HL speakers, *musti* [must] has acquired the participant-internal meaning. The fact that this innovative meaning is found only in the heritage group and in the Dutch group suggests that influence from Dutch before puberty is likely to be one of the forces at play. Additional evidence supporting the idea that the innovative use of *musti* [must] is directly related to Dutch comes from data on the language

history of the HL speakers. In Table 2, those HL speakers who used *musti* [must] with the ‘new’ participant-internal meaning are marked with gray shading. This table shows that, with the exception of speaker H26, all the bilinguals who displayed the innovative use of *musti* [must] belong to the LOW EXPOSURE group. Furthermore, all of them grew up as simultaneous bilinguals, acquiring both Ambon Malay and Dutch from birth. They had very little exposure to the homeland language variety: three speakers had visited the home country only a few times (at least two years prior to the interview), and the other three speakers had never visited it.

Table 2.

The Sociolinguistic Background of the Heritage Ambon Malay Group^a

		ONSET DUTCH	LANGUAGE SPOKEN WITH MOTHER	LANGUAGE SPOKEN WITH FATHER	LANGUAGE SPOKEN WITH SIBLINGS	LANGUAGE SPOKEN WITH PARTNER	NUMBER OF VISITS TO HOME COUNTRY
LOW EXPOSURE TO A. MALAY	H30	birth	Dutch	Dutch	Dutch	Dutch	2
	H11	birth	Dutch	Dutch	Dutch	Dutch	4
	H32	birth	Dutch	Dutch	Dutch	Dutch	6
	H31	birth	A. Malay	Dutch	Dutch	Dutch	0
	H14	birth	Dutch	Dutch	Dutch	Dutch	4
	H33	birth	A. Malay	Dutch	Dutch	Dutch	2
	H17	birth	Dutch	A. Malay	Dutch	Dutch	2
	H27	birth	Dutch	Dutch	Dutch	Dutch	0
	H23	birth	Dutch	Dutch	Dutch	Dutch	3
	H21	birth	Dutch	Dutch	Dutch	Dutch	4
	H13	birth	Dutch	Dutch	Dutch	Dutch	0
	H29	birth	Dutch	A. Malay	Dutch	Dutch	5
	H25	birth	Dutch	A. Malay	Dutch	Dutch	0
	H19	birth	Dutch	Dutch	Dutch	Dutch	1
	H20	birth	Mixed	Dutch	Dutch	-	6
	H22	birth	Dutch	Dutch	Dutch	Dutch	3
	H8	birth	Dutch	Dutch	Dutch	mixed	6
	H7	birth	Mixed	mixed	Dutch	Dutch	1
	H6	birth	Dutch	A. Malay	mixed	mixed	-

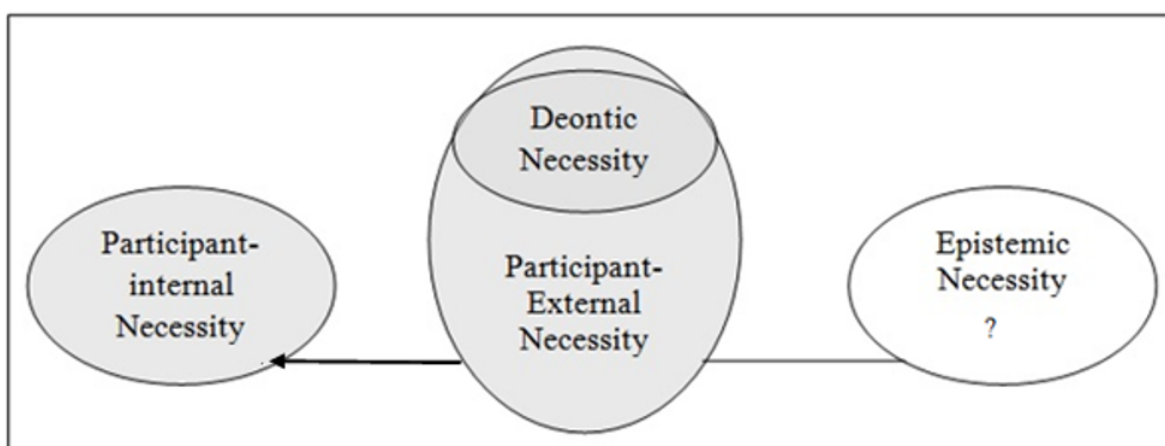
MEDIUM-HIGH EXPOSURE TO A. MALAY	H26	birth	A. Malay	A. Malay	mixed	Dutch	3
	H15	birth	A. Malay	A. Malay	Dutch	mixed	3
	H3	birth	A. Malay	mixed	mixed	A. Malay	2
	H28	> age 4	A. Malay	A. Malay	mixed	Dutch	4
	H24	> age 4	A. Malay	A. Malay	mixed	Dutch	10
	H2	> age 4	A. Malay	A. Malay	mixed	Dutch	-
	H9	> age 4	A. Malay	A. Malay	mixed	Dutch	5
	H16	> age 4	A. Malay	A. Malay	mixed	Dutch	2
	H18	> age 4	A. Malay	A. Malay	A. Malay	Dutch	3
	H5	> age 4	A. Malay	A. Malay	mixed	Dutch	6
	H4	> age 4	A. Malay	A. Malay	mixed	mixed	3
	H1	> age 4	A. Malay	A. Malay	A. Malay	Dutch	10
	H12	> age 4	A. Malay	A. Malay	mixed	A. Malay	8

^a A hyphen marks missing information; A. Malay = ‘Ambon Malay’).

7. DISCUSSION

The present data suggest that heritage Ambon Malay *musti* [must] has undergone semantic extension under the influence of Dutch. Figure 3 represents the modal space of heritage Ambon Malay *musti* [must]. The arrow indicates that [new] participant-internal meaning has been incorporated into the modal verb. The question mark in the epistemic oval indicates the lack of data in this domain.

Figure 3. The Modal Space of Heritage Ambon Malay *musti* [must]



Some HL speakers appear to have blended their semantic knowledge in order to form one integrated semantic subsystem. The mechanism underling this type of convergence is semantic generalization, defined as “the loss of specific features of meaning with the consequent expansion of appropriate contexts of use” (Bybee et al., 1994, p. 289). Under the influence of Dutch, *musti* [must] seems to have lost its specific feature ‘external forces’ and can now be used with the more general meaning of ‘forces compelling the participant to perform X.’ Generalization took place when the image schema of compelling forces was transferred from external circumstances to include internal ones. We may expect that the

image schema of ‘compelling forces’ will be further transferred to the speaker’s reasoning process (there are forces compelling the speakers to believe X; see Bybee, et al., 1994, pp. 286-287); this extension will give rise to the epistemic interpretation of *musti* [must].

The data provide one example indicating that epistemic extension has already taken place, at least in the mind of one HL speaker. The context was provided by one video showing two boys who repeatedly try to grab a t-shirt hanging in the branches of a tree. They try to reach it with a chair, with a ball, and with a short stick. Finally, when one of the boys brings a long stick, they manage to capture the t-shirt. When the participant saw the boy carrying the long stick, he uttered the sentence in (13):

- (13) *Kayu lebe besar sekarang, ini musi jadi*
wood.stick more big now this must happen

‘Now (he has) a longer stick, this time it must happen (they must succeed).’ (HL speaker)

In (13) the modal is epistemic because it indicates that, given the evidence that the speaker has, the action will succeed. The semantic extension of heritage *musti* [must] from a participant-external modal to a participant-oriented modal (both external and internal) and to eventually an epistemic modal is compatible with the grammaticalization path proposed by Functional Discourse Grammar (see Section 5). The replication of the Dutch pattern implies grammaticalization because the modal has increased its semantic scope. This type of contact-induced grammaticalization is triggered by the interlingual identification of two signs (*musti* in Ambon Malay and *moeten* in Dutch) and two categories (modality in Ambon Malay and modality in Dutch).

The psychological factor motivating semantic convergence of the two signs is the reduction of processing load (see Section 2). As pointed out by Silva-Corvalán (1994) and Ameel et al. (2005), there is a functional advantage to allowing the semantics of two signs to converge. If the semantic schemas of two signs from two different languages are identical (and the syntactic construction is also very similar, as for *musti* and *moeten*), the only operation that a bilingual speaker needs to perform is to select the appropriate phonological form. Language internal factors can facilitate interlingual identification between two signs. These factors are (i) structural autonomy – *musti* and *moeten* are both free morphemes; (ii) phonological similarity – *musti* and *moeten* are phonologically similar, and (iii) semantic transparency – *musti* and *moeten* express only modality and have no other function. Furthermore, it is likely that the process of semantic extension in heritage Ambon Malay was reinforced by concomitant universal principles, such as conceptual naturalness (see Section 2). The extension from participant-internal to external and vice versa is conceptually very natural for the human brain, as confirmed by the fact that in many languages these two modal meanings are expressed by the same form (van der Auwera et al., 2009, pp. 277, 293).

Social factors, such as parental language input and type of bilingualism, seem to predict innovative language use. The six HL speakers who displayed the innovative use of *musti* [must] were all simultaneous bilinguals, and all except one had low exposure to Ambon Malay during childhood. The association between innovative use of *musti* and simultaneous bilinguals is expected if we consider that children of different languages (Dutch, German,

Japanese, Korean, Cantonese) master participant-oriented modals already by the age 3,0 (Boland, 2006, pp. 497-499). Sequential bilinguals learned Dutch after the age of four, after having acquired the modal system of Ambon Malay. In contrast, simultaneous bilinguals were exposed to Dutch from birth, and therefore they probably acquired the two modal systems at the same time. The continuous interaction of the two languages is likely to trigger the semantic blending of the two systems.

It is noteworthy that the semantic extension observed in heritage Ambon Malay seems to also occur in other heritage languages in contact with Dutch. Additional evidence comes from heritage Mandarin in the Netherlands. The ‘sneeze’ video clip was described by a group of five HL speakers, and a group of eight baseline speakers (first generation speakers). In the baseline group, all speakers described the act of sneezing by simply using the predicate *da pen ti* [hit a sneeze]. In the heritage group, a bilingual boy born and raised in the Netherlands described the clip by using the modal verb *yao* [want, must] before the predicate, as illustrated in (14).⁷

- (14) 一 个 男 的 在 一 个 花 瓶 儿
 yi ge nan de zai yi ge hua pinger
 one CLF man NMLZ at one CLF flower bottle
- 旁 边 , 要 打 喷 嚏
 pang bian, yao da pen ti
 next side want hit sneeze
- ‘A man is next to a vase, (he) must sneeze.’

From a baseline perspective, the use of *yao* in this context is rather odd. In fact, corpus data shows that the two main meanings of the modal *yao* are volition [want to] (about 35%) and the participant-external deontic meaning [ought to, have to] (about 38%, see Yu, 1998, pp. 163-4). For at least one HL speaker, however, *yao* [want/must] has also acquired the participant-internal necessity meaning and it can be used to signal internal obligation related to [bodily activities]. This innovation is interesting especially in light of the findings of the present study. It seems that participant-oriented modality is highly vulnerable to dominant language influence, and that heritage languages in the Netherlands are undergoing such influence.

8. CONCLUSIONS

Of all TMA categories, modality seems to be one of the most susceptible to contact-induced change, and therefore one that is worth investigating in heritage languages. This article has tried to contribute to this line of research by investigating the semantics of the necessity modal *musti* [must] in heritage Ambon Malay in the Netherlands. The case study presented in this article has shown that, for some bilinguals, the heritage Ambon Malay modal *musti* [must] has acquired the participant-internal meaning under the influence of Dutch *moeten* [must]. The findings support the predictions of the Functional Discourse Grammar framework (hierarchy in (3)) because the dynamic (participant-oriented) and deontic modal *musti* [must] is vulnerable to cross-linguistic effects in heritage Ambon Malay. Furthermore, the fact that

musti [must] is an obligation modal also lends support to Matras's prediction (2009, 2011) (see hierarchy in (2)).

The preliminary findings of this study support the idea that HL speakers have blended the semantic knowledge of their two languages into one integrated modal system rather than maintaining two distinct systems (one for Dutch and one for Ambon Malay). The background data of the HL speakers show that the innovation correlates with the level of exposure to Ambon Malay and Dutch. The innovative use of *musti* [must] occurs in speakers who grew up as simultaneous bilinguals, and thus had relatively low exposure to Ambon Malay and high exposure to Dutch. Finally, semantic extension of the necessity modal seems to be occurring in other heritage languages in the Netherlands as well, such as heritage Mandarin. This suggests that participant-oriented necessity modals are likely to undergo semantic convergence in situations of language dominance.

There are inherent limitations in this study because the elicited material did not allow for a systematic observation of modal auxiliaries in context. Further research using *ad hoc* elicitation methods, such as Semantic Truth Value Judgment tasks, is needed. In addition, further research on other heritage languages in the Netherlands, and in other countries, may bring more insight about the extent of and the constraints on semantic transfer in the category of modality.

REFERENCES

- Albirini, A., Benmamoun, E., & Saadah, E. (2011). Grammatical features of Egyptian and Palestinian Arabic heritage speakers' oral production. *Studies in Second Language Acquisition*, 33(2), 273-303.
- Ameel, E., Storms, G., Malt, B. C., & Sloman, S. A. (2005). How bilinguals solve the naming problem. *Journal of Memory and Language*, 53(1), 60-80.
- Backus, A., Seza Doğruöz, A., & Heine, B. (2011). Salient stages in contact-induced grammatical change: Evidence from synchronic vs. diachronic contact situations. *Language Sciences*, 33(5), 738-752.
- Bao, Z. (2010). *Must* in Singapore English. *Lingua*, 120(7), 1727-1737.
- Boland, A. (2006). *Aspect, tense and modality: Theory, typology, acquisition*. Doctoral dissertation, University of Amsterdam, Netherlands. Utrecht: LOT. Retrieved from http://www.lotpublications.nl/Documents/124_fulltext.pdf
- Boumans, L. (2006). The attributive possessive in Moroccan Arabic spoken by young bilinguals in the Netherlands and their peers in Morocco. *Bilingualism: Language and Cognition*, 9(03), 213-231.
- Bybee, J. L., Perkins, R., & Pagliuca, W. (1994). *The evolution of grammar: tense, aspect, and modality in the languages of the world*. Chicago, IL; London, UK: The University of Chicago Press.
- De Haan, F. (2006). Typological approaches to modality. In W. Frawley, (Ed.), *The expression of modality*, (pp. 27-69). Berlin, Germany: Walter de Gruyter.
- Enfield, N. J. (2003). *Linguistic epidemiology. Semantics and grammar of language contact in mainland Southeast Asia*. London, UK, & New York, NY: RoutledgeCurzon.

- Foolen, A., & de Hoop, H. (2009). Conflicting constraints on the interpretation of modal auxiliaries. In L. Hogeweg, H. de Hoop, & A. Malchukov (Eds.), *Cross-linguistic semantics of tense, aspect, and modality* (pp. 303-316). Amsterdam, Netherlands: John Benjamins.
- Friedman, V. (2012). Language Contact. In R. Binnick (Ed.), *The Oxford handbook of tense and aspect*, (pp. 398-427). Oxford, UK: Oxford University Press.
- Gast, V., & van der Auwera, J. (2012). What is 'contact- induced grammaticalization?' Evidence from Mayan and Mixe-Zoquean languages. In B. Wiemer, B. Wälchli, & B. Hansen (Eds.), *Grammatical replication and borrowability in language contact* (pp. 381-426). Berlin, Germany, & Boston, MA: Walter de Gruyter.
- Gentner, D., & Bowerman, M. (2009). Why some spatial semantic categories are harder to learn than others: The typological prevalence hypothesis. In J. Guo, E. Lieven, N. Budwig, S. Ervin-Tripp, K. Nakamura, & S. Özçalışkan, (Eds.), *Crosslinguistic approaches to the psychology of language: Research in the tradition of Dan Isaac Slobin*, (pp. 465–480). New York, NY; London, UK: Psychology Press.
- Hansen, B. (2000). The German modal verb *müssen* and the Slavonic languages—The reconstruction of a success story. *Scando-Slavica*, 46(1), 77-92.
- Heine, B., & Kuteva, T. (2005). *Language contact and grammatical change*. Cambridge, UK: Cambridge University Press.
- Hengeveld, K. (2011). The grammaticalization of tense and aspect. In H. Narrog & B. Heine (Eds.), *The Oxford Handbook of Grammaticalization*, (pp. 580-594). Oxford, UK: Oxford University Press.
- Huwaë, R. (1992). Tweetaligheid in Wierden: het taalgebruik van jongeren uit een Molukse gemeenschap (unpublished doctoral dissertation). University of Amsterdam, Netherlands.
- Irizarri van Suchtelen, P. (2014). Maintained and acquired heritage Spanish in the Netherlands: The case of dative constructions. *Applied Linguistics Review*, 5(2), 375-400.
- Jarvis, S., & Pavlenko, A. (2007). *Crosslinguistic influence in language and cognition*. New York, NY & London, UK: Routledge.
- Lekawael, R. (2011). *The development of Moluccan Malay as a heritage language in the Netherlands* (unpublished master's thesis). Radboud University, Nijmegen, Netherlands.
- Massery, L. A., & Fuentes, C. (2014). Morphological variability at the morphosyntactic/semantic interface: Difficulty with epistemic modality in L2 Spanish. Morphological variability in L2. *International Journal of Applied Linguistics*, 165(1), 46-75.
- Matras, Y. (2007). The borrowability of structural categories. In Y. Matras & J. Sakel (Eds.), *Grammatical borrowing in cross-linguistic perspective* (pp. 31-74). Berlin, Germany: Walter de Gruyter.
- Matras, Y. (2009). *Language contact*. Cambridge, UK: Cambridge University Press.
- Matras, Y. (2011). Universals of structural borrowing. In P. Siemund (Ed.), *Linguistic Universals and Language Variation*, (pp. 204-233). Berlin, Germany, & New York, NY: Mouton de Gruyter.
- Montrul, S. (2008). *Incomplete acquisition in bilingualism: Re-examining the age factor*. Amsterdam, Netherlands, & Philadelphia, PA: John Benjamins.
- Moro, F. R. (2014). Resultative constructions in heritage Ambon Malay in the Netherlands. *Linguistics in the Netherlands*, 31(1), 78-92.
- Moro, F. R., & Klamer M. (2015). Give-constructions in heritage Ambon Malay in the Netherlands. *Journal of Language Contact*, 8, 263-298.
- Moro, F. R. (in press, a). Aspectual distinctions in Dutch-Ambon Malay bilingual heritage speakers. *International Journal of Bilingualism*.

- Moro, F. R. (in press, b). Dynamics of Ambon Malay: Comparing Ambon and the Netherlands. LOT Dissertation Series. Utrecht, Netherlands: LOT.
- Muysken, P. (2005). Possessive constructions in language contact settings. *Monash University Linguistics Papers*, 4(1), 11.
- Muysken, P. (2013). Language contact outcomes as the result of bilingual optimization strategies. *Bilingualism: Language and Cognition*, 16(04), 709-730.
- Nuyts, J. (2005). The modal confusion: on terminology and the concepts behind it. In A. Klinge & H. H. Müller (Eds.), *Modality: Studies in form and function* (pp. 5-38). London, UK: Equinox Publishing Ltd.
- Nuyts, J. (2006). Modality: Overview and linguistic issues. In W. Frawley, (Ed.), *The expression of modality* (pp. 1-26). Berlin, Germany: Walter de Gruyter.
- Onar Valk, P. (2015). *Transformation in Dutch Turkish subordination? Converging evidence of change regarding finiteness and word order in complex clauses*. LOT Dissertation Series 394. Utrecht, Netherlands: LOT.
- Palmer, F.R. (2001). *Mood and modality*. Cambridge, UK: Cambridge University Press.
- Pavlenko, A. (Ed.). (2011). *Thinking and speaking in two languages*. Bristol, UK: Multilingual matters.
- Polinsky, M., & Kagan, O. (2007). Heritage languages: In the 'wild' and in the classroom. *Language and Linguistics Compass*, 1(5), 368-395.
- Raschka, C., Wei, L., & Lee, S. (2002). Bilingual development and social networks of British-born Chinese children. *International Journal of the Sociology of Language*, 153, 9-26.
- Silva-Corvalán, C. (1994). *Language Contact and Change: Spanish in Los Angeles*. Oxford, UK: Clarendon Press.
- Soolsma, R. (2013). *De progressief in het Nederlands en het Moluks Maleis* (unpublished master's thesis). Radboud University, Nijmegen, Netherlands.
- Sorace, A. (2011). Pinning down the concept of "interface" in bilingualism. *Linguistic approaches to bilingualism*, 1(1), 1-33.
- Tahitu, B. (1989). *Melaju Sini. Het Maleis van Molukse jongeren in Nederland* (unpublished doctoral dissertation). Leiden University, Leiden, Netherlands.
- Tjia, J. (1992). Partikel-partikel Dalam Klausa, Kalimat dan Wancana Melayu Ambon: Catatan Pendahuluan. *Cakalele*, 3, 43-61.
- van der Auwera, J., & Plungian, V. A. (1998). Modality's semantic map. *Linguistic Typology*, 2(1), 79-124.
- van der Auwera, J., Kehayov, P., & Vittrant, A. (2009). Acquisitive modals. In L. Hogeweg, H. de Hoop, & A. Malchukov (Eds.), *Cross-linguistic semantics of tense, aspect, and modality*, (pp. 271-302). Amsterdam, Netherlands: John Benjamins.
- Van Minde, D. (1997). *Malayu Ambong*. Leiden, Netherlands: Research School CNWS.
- Veenman, J. (1994). *The social integration of Moluccans*. Rotterdam: Koninklijke Vermande/ISEO.
- von Fintel, K., & Gillies, A. S. (2007). An opinionated guide to epistemic modality. *Oxford studies in epistemology*, 2, 32-62.
- Weinreich, U. (1953). *Languages in contact*. The Hague, Netherlands: Mouton.
- Winford, D. (2012). Creole Languages. In R. Binnick (Ed.), *The Oxford Handbook of Tense and Aspect*, (pp. 428-457). Oxford, UK: Oxford University Press.

- Yu, J. H. (1998). Some speculations on the semantic change of Chinese modal verb 'yao.' *Whenshan Review of Literature and Culture*, 1(2), 161-175.
- Ziegeler, D. (2014). Replica grammaticalisation as recapitulation. *Diachronica*, 31(1), 106–141.

NOTES

1. The higher incidence of SV order could also be due to simplification rather than to transfer from English or Dutch. Two simplification processes may be responsible for the higher incidence of SV: (i) SV is claimed to be the least complex or the most unmarked order; (ii) the language simplifies its system by changing from flexible-word order to rigid word order (Polinsky & Kagan, 2007, p. 382; Albirini et al., 2011, p. 298; Onar Valk, 2015, p. 245). The most likely scenario is that simplification and English/Dutch influence reinforce each other in promoting heritage language change.
2. Deontic modality could be seen as a sub-type of participant-external modality because the deontic source is usually external to the participant. For this reason, in Figure 1, Figure 2 and Figure 3 the circle of deontic modality is enclosed into the larger circle of participant external modality.
3. The examples in (1) – (3) are from von Fintel and Gillies (2007, p. 34).
4. The hierarchy is based on a sample of 27 languages (Matras, 2007, p. 36).
5. Abbreviations used in this article are: ART= article, CLF=classifier, DEF= definite; D.DIST= distal demonstrative; EXIST= existential, INF= infinitive; LOC=locative; M= masculine; NMLZ= nominalizer, ORD=ordinal number; PL= plural, REL= relativizer (in Ambon Malay), relative pronoun (in Dutch), SG= singular, 1= first person, 3= third person.
6. The heritage Ambon Malay data and the baseline Ambon Malay data were collected by the author and by Rosina Lekawael (2011), Jusmianti Garing and Feny Eky; the Dutch data were collected by Rowan Soolsma (2013).
7. I would like to thank Suzanne Aalberse for providing me with this example.