

Adapting the Bilingual Aphasia Test for West Greenlandic. Issues and alternatives

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Abstract

Background: West Greenlandic patients diagnosed with Broca's aphasia exhibit a non-conventional syndrome, which could be related to certain peculiarities of polysynthetic languages. However, there is currently no acknowledged screening test available for West Greenlandic, which means that the current diagnosis is based on theory founded on dissimilar Western European languages. To advance our understanding of aphasia and improve the therapeutic outlook of West Greenlandic patients, we should adapt one of several available tests for West Greenlandic.

Aims: The aim of this article is to provide a preliminary sketch of features of the West Greenlandic dialect that would require added awareness in the event of an adaption due to their contrast with Western European morphology and syntax.

Method & procedure: I compared valency and derivational morphology across English and West Greenlandic to demonstrate their differences.

Outcomes & results: The expected differences were confirmed. West Greenlandic uses derivational morphology to convey more information than English. Likewise, West Greenlandic also possesses features without equal in the English language.

Conclusion: Based on the results, it is safe to say that there exists a need for an adapted test for West Greenlandic patients. The Bilingual Aphasia Test displays significant advantages and should be considered for adaption.

Keywords: Broca's aphasia, Eskimo language, Bilingual Aphasia Test (BAT), polysynthesis, West Greenlandic

1. Introduction

For Broca's aphasia patients speaking Western European languages e.g. English, German, Italian, etc., treatment is based on an established syndrome of non-fluent speech, agrammatic behavior and lexical retrieval issues (Rossi & Bastiaanse 2008; Jonkers & de Bruin 2009; Gajardo-Vidal et al. 2021). This established syndrome has facilitated a multitude of aphasia screening tests used to diagnose and assess aphasia patients. However, the behavior of West Greenlandic aphasia patients is not consistent with the conventionally defined syndrome. In addition, rather than being an isolated case, research conducted on agglutinating languages demonstrate similar results (Sasanuma et al. 1990; Niemi et al. 1990; Maviş 2005). However, even though this anomalous behavior has

been successfully addressed in cases such as Finnish, Turkish and Japanese¹, West Greenlandic is yet to receive similar treatment, despite significant benefits for the affected linguistic community. As a result, West Greenlandic speakers experience severely limited therapeutic options caused by this scarcity of research (Beveridge & Bak 2011; Miller-Amberber 2011; Fyndanis et al. 2017). Similarly, a novel approach to defining the grammar-lexicon distinction could impact the affected linguistic communities, as a universally valid definition could be applied to diagnosing aphasia patients.

In order to improve the current diagnostic process in these linguistic communities, researchers should address the lack of available aphasia screening test by adapting the Bilingual Aphasia Test to correspond to the needs of the West Greenlandic speakers. However, to succeed in adapting the existing tests, it is crucial to implement key linguistic features of West Greenlandic. As the foundational principles of aphasiology as well as the screening tests are predominantly based on Western European languages (Beveridge & Bak 2011), a direct translation to suit speakers of polysynthetic languages, e.g. West Greenlandic, would fail to capture telling aspects of the target language and risk producing non-reliable results.

Therefore, in this article, I will discuss the benefits of adapting a readily available aphasia screening test to diagnose West Greenlandic aphasia patients. To accomplish this adaption, I will summarize typological differences between English and West Greenlandic to highlight the importance of adaption rather than translation. This is done in accordance with the principles presented by Paradis (2011). To demonstrate the preliminary steps required to adapt the Bilingual Aphasia Test for a particular language, I will highlight a few linguistic features from West Greenlandic which will require extra resources due to the contrast with their English counterparts. Subsequently, I will discuss my findings and conclude. In the end, I hope to lay the groundworks for a future, extensive adaption of an aphasia screening test for West Greenlandic aphasia patients. As there is currently no available aphasiological studies of polysynthetic languages (Nedergaard et al. 2019), and West Greenlandic is at risk of becoming extinct according to some sources², the results presented in this article are a necessary and timely contribution to the field of aphasiology.

2. Bilingual Aphasia Test (BAT)

An aphasia screening test is a tool which is utilized by clinical or civilian personnel to test individuals exhibiting behavior consistent with an aphasia syndrome. The BAT determines the linguistic capacity of the suspected aphasia patient by presenting an array of questions across four modalities for the patient to answer: Hearing, speaking, reading and writing with questions distributed across 32 tasks (Paradis 2011). Once completed, the result serves a dual purpose: 1) To discern the optimal language for verbal communication should the patient be multilingual, and 2) to focus resources on the linguistic aspects that are most critically compromised. Whilst some facets

¹ <https://www.mcgill.ca/linguistics/research/bat>

² <http://www.endangeredlanguages.com/lang/8689>

are comparable across typologies, some typologically distinct features of West Greenlandic require careful implementation.

Whilst there is a wide variety of aphasia screening tests available, each with their own advantages, I have chosen the BAT for preliminary adaption as several factors argued in favor of this version: The BAT is applicable for both mono- and multilingual speakers. Albeit, an adapted test for both of the patient's specified languages are required. Furthermore, it can be administered by a non-specialist. Additionally, it has successfully been adapted to less studied languages (Paradis 2011). Finally, there already exists a version for *Inuktitut* – a Canadian Inuit language³.

Firstly, since the majority of the Greenlandic population is Danish-Greenlandic bilingual⁴, it naturally provides additional options for the clinical specialists to deliver a diagnosis on the basis of two languages. However, should the patient be monolingual, it will not lessen the applicability of the test, as Schneider and Hopp (2011) have successfully applied the BAT to monolinguals.

Secondly, it will enable a health service with few specialists to diagnose a greater number of patients. Familial involvement is already standard praxis in diagnosing aphasia patients (Nedergaard et al. 2019), and due to the step-by-step nature of the BAT, any relative of the aphasia patient with adequate grammatical knowledge can conduct the trial and report the findings to a certified clinical specialist. Thus, the specialist can invest their resources in deciphering the data gathered by relatives of the aphasia patient instead of performing visitations.

Finally, several researchers concerned with languages that also land in the periphery of aphasia research, have successfully adapted the BAT to conform to the peculiarities of the languages under study. For instance, Miller-Amberber (2011) adapted the BAT for use amongst the Cook Islanders speaking the Rarotongan dialect. As is the case with West Greenlandic, Rarotongan possesses typologically distinctive features which could be affected differently by aphasia than putative assumptions would suggest. To remedy this, Miller-Amberber (2011) emphasized key features of Rarotongan phonology, grammar, morphology, lexicon and orthography which would require careful implementation.

2.1 Diagnosis

To test for the conventional aphasia syndromes, the interviewer examines the aphasia patient's speech for production impairments in line with the Broca's aphasia syndrome i.e. non-fluent speech, agrammatic behavior and lexical retrieval issues (Rossi & Bastiaanse 2008; Jonkers & de Bruin 2009; Gajardo-Vidal et al. 2021). The patient is also examined for comprehension deficits, i.e. impaired comprehension, as well as fluent, though unintelligible speech, all of which indicates Wernicke's aphasia (Turken & Dronkers 2011; Binder 2015; Wiener et al. 2004; Murray et al. 1997).

Initially, to establish the aphasia patient's linguistic background, the interviewer will ask introductory questions regarding their place of birth, upbringing, multilingual parentage, education,

³ <https://www.mcgill.ca/linguistics/research/bat>

⁴ <https://naalakkersuisut.gl/en/About-government-of-greenland/About-Greenland/Facts-about-Greenland>

etc. Next, the interviewer starts the examination by having the patient speak spontaneously for five minutes. Once the time has passed, the examiner will have baseline values defining the speaker's speech volume, fluidity, pronunciation, grammatical ability and vocabulary.

Afterwards, the patient is presented with questions and tasks designed to demonstrate the patient's proficiency in linguistic production and comprehension. Among other things, the examiner will test the patient's comprehension deficits by using questions and assignments on:

- a. *Oral comprehension* by tasking the aphasia patient with completing orders of increasing difficulty e.g. *touch the ring* and (written from the perspective of the interviewer) *Here are three pieces of paper. Give me the smallest piece, put the middle piece in your lap and discard the largest piece.*
- b. *Comprehension of syntactic constructions* by presenting the aphasia patient with sentences differing by syntax e.g. *she holds him* and *he holds her* and asking them to match the sentence with the corresponding picture.

Similarly, to examine the patient's production proficiency, the examiner asks the patient to complete the following assignments:

- a. *Word mobilization* by tasking the aphasia patient with producing as many words as possible in one minute. Subsequently, the interviewer will add a phonetic condition e.g. the words must begin with /s/.
- b. *Enumeration* by presenting a series of items to the aphasia patient e.g. *book, glasses* and *fork* and asking the patient to name the item.
- c. *Sentence construction* by providing words e.g. *house* and *cat* which the aphasia patient must use to construct a grammatically correct sentence.

During the test, the patient's answers are registered and scored, giving one point for a correct answer and zero for an incorrect answer. Once the examination has been concluded, the results are delivered to a clinical specialist who analyzes the scores. Should the result confirm that the patient exhibits behavior in accordance with either aphasia syndrome, the clinical specialist will diagnose the patient with aphasia.

3. Typological distinctions

Despite the fact that the putative aphasia syndromes are generally based on Western European languages (Beveridge & Bak 2011), it was presupposed by aphasiologists that the syndrome they constructed would be universal. Subsequent studies (Sasanuma et al. 1990; Niemi et al. 1990; Maviş 2005; Nedergaard et al. 2019) have demonstrated that their findings were not representative. For instance, polysynthetic languages such as West Greenlandic are severely underrepresented in the literature on aphasia. According to Nedergaard et al. (2019), no literature on the behavior of aphasia patients speaking polysynthetic languages is available, whether it be surveys (Beveridge & Bak 2011), tests (Bastiaanse et al. 2016), anthologies (Menn & Obler 1990) or large databases such as AphasiaBank. However, a number of articles on the behavior of agglutinating language speakers suffering from Broca's aphasia are available (Sasanuma et al. 1990; Niemi et al. 1990; Maviş 2005),

and these support the findings from Nedergaard et al. (2019) further emphasizing the need for added attention on the subject.

Due to the limited knowledge on the behavior of polysynthetic language speakers suffering from Broca's aphasia, the necessary theoretical foundation for a screening test adaption is currently not available. To address this issue, I will perform a cross-linguistic comparison to determine the typological classification of English and West Greenlandic (see Section 4). This will illustrate the contrast between the typologies, and, in turn, why West Greenlandic aphasia patients seemingly do not behave in accordance with the conventional Broca's aphasia syndrome.

To emphasize the contrast between synthetic, agglutinating and polysynthetic languages, I will briefly demonstrate how these convey linguistic information before conducting the comparison in Section 4.

3.1 Synthetic languages

Based on Bergmann et al. (2007) English is a synthetic language as the "... bound morphemes are attached to other morphemes, so a word may be made up of several meaningful elements." (Bergmann et al. 2007: 164). This structure is evident in number marking, derivational marking, possessive marking, etc.: *dog – dogs, to bake – a baker* and *my sister's baby*. Synthetic languages are characterized by their affinity for morphological marking (Bergmann et al. 2007).

(1) English

The	teacher	-s	are	angry
DEF.ART	N	PL	AUX	ADJ

'The teachers are angry'

3.2 Agglutinating languages

Agglutinating languages are a subtype of synthetic languages. The defining distinction between the two types is that an agglutinating language exhibits a more flexible morphological structure, and morphemes do not convey more than one meaning (Bergmann et al. 2007). Additionally, agglutinating languages may use morphemes instead of lexemes to convey linguistic concepts e.g. location.

(2) Hungarian (Bergmann et al. 2007: 164)

Ház	-ad	-ban
N	2SG.POSS	PREP

'In your house'

3.3 Polysynthetic languages

Finally, polysynthetic languages, another subtype of synthetic languages, are highly synthetic language, and they rely to an even greater extent than agglutinating languages on morphology to

convey meaning. Bergmann et al. (2007) describes words in a polysynthetic language as “highly complex [and] may be formed by combining several stems and affixes.” (Bergmann 2007: 166). This is an apt description of a West Greenlandic word, and it is in accordance with the description of “extreme morphological complexity” presented in Nedergaard et al. (2019: 1).

(3) West Greenlandic (Fortescue 1984: 171)

Aningaasaatiqarpunga

Aningaasa	-ati	-qar	-punga
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Money ALIEN	have	1SG.INDIC	
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‘I have some money’

4. Typological comparison

Following the classification by Bergmann et al. (2007), we have established that English and West Greenlandic are typologically distinct. This conventionally signifies that the languages differ in their structural approach to expressing linguistic content (cf. Section 3.1 & 3.3). Knowing this, I am going to outline some of the critical distinctions between English and West Greenlandic that will require increased attention when adapting an aphasia screening test intended for West Greenlandic aphasia patients. Additionally, I will provide examples of these points (see Section 4.1 & 4.2) by comparing how English and West Greenlandic construct sentences with a focus on derivational morphology and valency. These features are examples of notably complex linguistic aspects, in which the West Greenlandic structures do not resemble their functional equivalents in English.

4.1 Derivational morphology

Morphology is divided into two subdivisions: Inflectional and derivational morphology. In general, the behavior of these affixes is similar. Both morphological subdomains are involved in lexical modification. Specifically, inflectional morphemes add grammatical information, e.g. plurality, to a lexeme, whereas derivational morphology derives new lexemes (Kastovsky 2006). However, the extent to which each language employs morphology to convey meaning varies depending on typology.

English derivational morphemes are predominantly suffixes e.g. *-r*, *-ish* and *-ly*. These can be combined with a root e.g. *fletch*, *fool* or *happy* to alter the grammatical category of each root by producing a noun, adjective and adverb. This morphologically conditioned change is characteristic of derivational morphology.

West Greenlandic stems are subject to the same variable pattern. However, whereas English rarely, if ever, modifies a single root with multiple suffixes, it is not uncommon in West Greenlandic to encounter multiple affixes preceding a final inflectional suffix. As Fortescue (1984) puts it: “Derivation by affix [...] is of paramount importance to the morphology of West Greenlandic [...]” (Fortescue 1984: 313). Due to the complexity of the morphological structure, this has been labeled the *internal syntax* to distinguish it from the *external syntax* i.e. the structure of the parts-of-speech

across a sentence. This distinction is relevant as rearranging the internal syntax can result in changes in meaning.

(4a) West Greenlandic (Fortescue 1984: 313)

Urnikkusunniqarpuq

Urnik	-kusun	-niqar-	-puq
Come-to	want	PASS	3S.IND

‘Somebody wanted to come to him’

(4b) West Greenlandic (Fortescue 1984: 313)

Urninni qarussuppuq

Urnin	-niqa	-rusup	-puq
Come-to	PASS	want	3S.IND

‘He wanted somebody to come to him’

By altering the internal syntax of (4b) a similar yet distinct meaning is produced. Likewise, an identical affix can be repeated iteratively in a single stem. In (4c), *-ssar* and *-siur* are both utilized twice within the same derivation. Although, certain lexicalized constructions i.e. a combination of morphemes classified as an indivisible unit in a dictionary (Nedergaard et al. 2019), runs counter to this iterative potential (Fortescue 1984).

(4c) West Greenlandic (Fortescue 1984: 316)

Aamarutissarsiuurvissarsiuurtutuaasuq

Aamaruti	-ssar	-siur	-vi	-ssar	-siur	-tu	-tua	-a	-suq
Coal	FUT	look-for	place	FUT	look-for	INTR.PART	only be	INTR	PART

‘Who is the only one looking for a place to look (prospect) for coal?’

4.2 Valency

In the case of English, valency is predominantly a meta-linguistic label used to denominate the number of arguments required by the verb. Although, grammatical correctness requires implicit knowledge of the valency of each verb. The valency of each verb determines the number of arguments required to produce a valid sentence. For instance, *sleep*, *eat* and *give* take one, two and three arguments respectively e.g. *he slept*, *she eats raisins* and *he gave her a packet of raisins*. However, in West Greenlandic, the distinction between transitive and intransitive verbs performs another function as well: It assumes the role of an otherwise lacking grammatical category for definiteness (Langgård 1997).

(5a) West Greenlandic (Langgård 1997: 31)

Angut meeqqamik takusaqarpoq

Angut	meeqqa	-mik	takusa	-qar	-poq
Man.ABS	child	OBL	see	DTRNZ.VB	3S.IND

‘The man saw a child’

(5b) West Greenlandic (Langgård 1997: 31)

Angutip meeraq takuaa

Angu	-tip	meeraq	taku	-aa
Man	REL	child.ABS	see	TRZ.3S-3S.IND

‘The man saw the child’

Sentence (5a) and (5b) exemplifies how West Greenlandic conveys definiteness. In (5a) the innately intransitive *-qar* is used. As verbal stems constructed using *-qar* is invariably intransitive, the object *meeqqamik* [child] is still present in the sentence, but it no longer serves as an argument to the verb, similar to *antipassive voice*, thereby marking the object as indefinite. Albeit, in (5a) no change of thematic relations occurs which is a hallmark feature of a true antipassive construction. Conversely, in (5b) the innately transitive affix *-aa* is used. Unlike *-qar* this affix does not change the valency of the sentence, but it marks the object as definite.

(6a) West Greenlandic (Schmidt 2003)

Jensip tutu toquppaa

Jensi	-p	tuttu	toqu	-p	-paa
Jens	ERG	reindeer.NOM	die	TRNZ	3S.3S.IND

‘Jens killed the reindeer’

(6b) West Greenlandic (Schmidt 2003)

Jensi tuttumik toqutsivoq

Jensi	tuttu	-mik	toqu	-t	-si	-voq
Jens.NOM	reindeer	INST	die	TRNZ	DTRNZ	3S.IND

‘Jens killed a reindeer’

In eskimology, this quasi-antipassive is called *half-transitive* because of its hybrid status between a transitive and an intransitive construction. Similar to transitive constructions, it takes an object. However, it is only marked for subject agreement (Schmidt 2003). Comparing the two examples, it becomes evident that (6b) only displays subject agreement (*-voq*), whereas (6a) employs a coreferential 3rd person marker *-paa* which serves as both subject and object agreement (Fortescue 1984). These half-transitive affixes enable nominalization of inherently transitive verbal roots (Langgård 1997; Fortescue 1984).

4.3 Results

The analysis demonstrates how English and West Greenlandic differentiates in the construction of valency, and their usage of derivational morphology. These typologically dependent variances and the anomalous behavior seen in West Greenlandic patients with aphasia as reported by Nedergaard et al. (2019) could be correlated, and this would warrant significant adaption of a screening test.

Whereas derivational morphology in English and West Greenlandic is structurally similar, the structural complexity and functions attributed to morphology in West Greenlandic is incomparable to English. Certain features, such as half-transitive, are without equal in the English language. Likewise, there exists evident contrast in the functionality of transitivity in English and West Greenlandic. The most prominent distinction between the languages is the method each language employs to communicate definiteness. English accomplishes this lexically, whereas West Greenlandic modifies the transitivity of the verbal root to indicate definiteness.

5. Broca's diagnosis discrepancy

There is a possibility that the irregular behavior displayed by the West Greenlandic patients in Nedergaard et al. (2019), and the typology of West Greenlandic is correlated. This is a compelling argument as no significant amount of scientific resources have been invested into the relation between language typology and the outcome of aphasia. As a consequence, it represents a largely unknown factor in aphasiology. The results of the typological comparison (see Section 4.3) are supportive of the notion that unconventional outcomes could occur caused by the difference between how a synthetic and a polysynthetic language operates.

However, if you reconcile the irregular findings from Nedergaard et al. (2019) with the observations that Broca's aphasia patients do not produce non-modified stems or root if these are unable to function as independent words (Grodzinsky 1990), the findings are no longer as anomalous. Unlike English, West Greenlandic nouns and verbs are unable to function as unmodified words. Since West Greenlandic nouns and verbs require inflectional morphological marking to function, it could explain why the patients display no significant impairment to their inflectional inventory following their aphasia diagnosis. However, derivational marking is not necessary for nouns and verbs to function as independent words, and so its retention in patients cannot be explained using the same concept as its inflectional counterpart.

Yet, Slobin (1991) hypothesized during his study of Turkish, that his patients retained the use of affixes because these were crucial in conveying information of grammatical relations. In relation, Boye and Harder (2012) hypothesized that the current definition of grammar-lexicon is inadequate, and the consequences can be seen in the irregular behavior of West Greenlandic aphasia patients. Boye and Harder (2012) distanced themselves from the current theoretical paradigm by suggesting that the grammar-lexicon distinction should be defined based on discursive characteristics rather than the current opaque definitions. Instead, items of grammar and lexicon should be defined based on whether the information they convey is crucial to the interpretation of the sentence or ancillary i.e. *foreground* or *background* information (Boye & Harder 2012). This approach to grammar could explain why West Greenlandic patients display virtually no morphological impairment where they conventionally should.

In essence, discourse prominence addresses the shortcomings of the currently opaque definitions of grammatical and lexical nature (Boye & Harder 2012). The theory is based on the general principle of cerebral prioritization following any informational input. Basically, any information which is

deemed important is allocated more cognitive resources, and as a consequence less likely to experience impairment following cerebral trauma (Nedergaard et al. 2019). Boye and Bastiaanse (2018) argue that aphasia cases present the ideal testing ground to test this theory. Since Broca's and Wernicke's aphasia have traditionally been classified as grammatical and lexical retrieval impairments respectively, the speech of a Broca's aphasia patient could be foundational to what constitutes a grammatical item, and vice versa for a Wernicke's patient. For instance, as West Greenlandic aphasia patients only exhibit shorter sentences and trends indicating a decrease in syntactic complexity, but no significant morphological impairment, this would suggest that affixes in West Greenlandic are important for the interpretation of the sentence and thus allocated more cognitive resources. This indicates that affixes – traditionally classified as grammatical – should instead be classified as lexical, at least in a West Greenlandic domain. Conversely, affixes in English appear ancillary, not prioritized as highly and should still be classified as grammatical.

At first examination, this appears reasonable. Although, beyond a superficial analysis, the theory requires further investigating. First, consider the sentence: *Pluto loved going on walks with Mickey Mouse*. One would immediately recognize the conventional lexical items *Pluto, love, go, walk, Mickey Mouse* and the conventional grammatical items *with, on, -s, -d* and *-ing*. The lexical items are foreground information i.e. they are critical in order to interpret the sentence as intended. Speakers would still be able to comprehend **Pluto love go walk Mickey Mouse*. Conversely, with only background information it is impossible to interpret the intended meaning (Boye & Harder 2012). Alternatively, consider the following sentence:

(7) West Greenlandic (Nedergaard et al. 2019: 10)

Taqqavaniinnerpunga *Sanamut

Taqqava -niin -ner -punga Sana -mut

There(south) be in location I wonder IND.1.SG Sana TRM

“I was probably down south. To Sana

Example (7) is a nearly grammatically correct sentence produced by a patient from Nedergaard et al. (2019). The final inflection *-mut* should have been locative *-mi*

Nevertheless, in order for discourse prominence to be valid, none of the linguistic information in (7) should be classifiable as ancillary, as this would render it superfluous. Instead, since none of the morphology is impaired, discourse prominence theory would argue that all of the information conveyed using conventionally grammatical affixes in (7) is foreground information.

Currently, a number of methods to determine the discursive status of a linguistic item are available. However, due to the lack of empirical data on agglutinating and polysynthetic languages, it is unclear to what extent these tests can be extended to these languages (Boye & Harder 2012). Thus, in order to resolve this issue these methods would need to be evaluated in the context of West Greenlandic language.

Whilst I do believe that the advantages of the BAT presented in Section 2 make it the best test for use in Greenland, conventional tests are shown to be incapable of accounting for the behavior in agglutinating and polysynthetic aphasia patients. Therefore, I believe that a re-evaluation of the current diagnostic approach should be considered first for the benefit of these language communities.

6. Discussion

In this section, I will discuss topics related to the applicability of the BAT for the West Greenlandic patient circle. The focus will be on dialectal variation, mono- and multilingualism, prerequisite knowledge required for the application of the aphasia screening test, and other practical considerations.

The motivation for this article is the lack of an official version of any aphasia screening test available for West Greenlandic patients. However, the fact that an official version of the BAT exists for Inuktitut, a Canadian Inuit language, could facilitate the adaption to the West Greenlandic dialect. Typologically dictated decisions made in the design of the Inuktitut version could be considered in the design of a West Greenlandic version, as these are typologically similar languages. Therefore, features in need of adaption, besides those mentioned in this article, could have already been adapted for the Inuktitut dialect. Although, as has been stressed throughout the article, adapting the peculiarities of each language is crucial. Thus, despite the relatedness of the languages, no feature should be transferred across versions without consideration of linguistic differences.

Should an adapted aphasia screening test for West Greenlandic patients ever become a reality, it will enable patients to be diagnosed based on scientifically approved methods, and receive focused treatment. However, whilst the majority of the Greenlandic population speaks West Greenlandic, three other dialects are recognized. Similar to the scenario with Inuktitut, certain features could be sufficiently similar to warrant matching screening test segments. Although, at least one of the recognized dialects, East Greenlandic, could reasonably be classified as a distinct language (Mahieu & Tersis 2000), and sources have reported that East Greenlandic is not mutually intelligible by the other dialects (Menecier 1995). Therefore, I would argue in favor of a separate screening tests for each of the Greenlandic dialects to guarantee reliable results. Unfortunately, I have been unable to find evidence to indicate if any of the other Greenlandic dialects are mutually intelligible. Thus, further research is required to determine the level of intelligibility between South Greenlandic, West Greenlandic and the Thule dialect.

Furthermore, as both Danish and Greenlandic are officially recognized national languages of Greenland, the majority of the population is bilingual. On the one hand, this plays to the strength of the BAT as it is designed for bilingual usage. The dual structure of the test enables the clinical specialist to determine which language is most severely affected and adjust treatment based on the patient's own input. As a West Greenlandic patient demonstrates a higher degree of verbal competence than their English counterparts, they can provide a more detailed description of their

ailment, thus improving their own therapeutic outlook. On the other hand, despite achieving a perfect adaption, the test might encounter obstacles, which would obstruct the diagnostic process. As Nedergaard et al. (2019) learned, speakers of highly synthetic languages do not exhibit the putative Broca's aphasia syndrome. These findings challenge the suitability of any adapted test based on the putative Broca's syndrome. Thus, the current West Greenlandic aphasia protocol would likely improve therapeutically if the BAT was successfully adapted. Alternatively, if the necessary empirical trials are performed on West Greenlandic to implement the ideas of discourse prominence, it has the potential to be used as a more reliable diagnostic tool.

7. Conclusion

This article has emphasized the need for adaption of aphasia screening tests rather than translation using a theoretical approach presented by Paradis (2011). Based on his work, I included two linguistic features from West Greenlandic which would need extra focus when adapting the BAT to conform with the needs of West Greenlandic aphasia patients.

As has been made evident, crucial distinctions exist between the English and West Greenlandic language. The result of this brief analysis has demonstrated how the included features differ between West Greenlandic and their English counterparts in function and design. Shared by both languages is the universal function of valency to condition the number of verbal arguments required for grammatical correctness. Unique to West Greenlandic is how the language uses valency marking to express definiteness, which is otherwise not an explicit grammatical category. Likewise, derivational morphology plays a more extensive role in West Greenlandic than in English. The functions managed by affixes in West Greenlandic, as well as the potential for derivational expansion, means that this aspect is incomparable to the English language. Moreover, additional linguistic features from West Greenlandic may exhibit similar contrasts. However, further research on highly synthetic languages is required before a conclusion can be reached.

Thus to best serve West Greenlandic aphasia patients, valency, derivational morphology, etc. will require careful implementation during the design process of the BAT adaption in order to demonstrate the true extent of the speaker's linguistic impairment. This will likely not be an insurmountable task, as successful adaption attempts have been made on typologically similar languages (Miller-Amberber 2011). Alternatively, resources could be spent on advancing our knowledge of discourse prominence in highly synthetic languages. This could enable valid tests to be designed, which would embrace speakers of polysynthetic and agglutinating languages, and guarantee them the benefits of a specialized therapeutic process.

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