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ADAPT IT: SOME LESSONS LEARNED IN THE SAVEENG LANGUAGE PROGRAM

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1. Historical background

My wife and I assisted the speakers of the Austronesian language Mangaaba-Mbula in a more or less traditional SIL translation program from 1982–1999. Mangaaba-Mbula is spoken by people living on the eastern side of Umboi Island and on Sakar Island in the Morobe Province of Papua New Guinea. During these years, we learned to speak the language, analyzed the phonology and grammar, and produced a wide variety of literacy materials (primers based on Genesis, collections of traditional stories, an abbreviated version of *Pilgrim's Progress*, a vernacular hymnbook, Sunday lectionary readings, and other titles). A reference grammar of Mangaaba-Mbula and a number of linguistic papers describing various aspects of the language's grammar were produced during the course of a study program at the Australian National University and afterwards. The New Testament plus Genesis, Psalms, Jonah, Ruth, and most of Exodus were published and dedicated in 1997, and the book of Proverbs was translated and printed afterwards.

The Saveeng language (also known as Mutu and Mutu-Tuam) is spoken on the small coral Siassi Islands that are located to the southeast of Umboi Island. The language has three dialects: Tuam, Oov, and Malai. In 1998 and 1999, as the Mangaaba-Mbula translation project was drawing to a close, we began collecting texts and doing language learning in the Oov dialect, hoping to remain in our old Mbula village and work with Oov speakers, who regularly visit for purposes of trading. However, this turned out not to be feasible, because our contacts with Oov speakers were too sporadic. One day, some leaders from Yaagha village, a settlement of Tuam dialect speakers living near the airstrip we normally use, came to visit us. They informed us that they had heard we were beginning work in the Saveeng language, and invited us to work out of their village. They told us, "We have watched what you have done with the Mbula people, and we would very much like the same." Their visit, along with some other events which took place at the time, led us to the conclusion that we should defer translation work on the Oov dialect for the time being and instead commence work in the Tuam dialect. We continued, however, to interact with the Oov people and assist them in the production of literacy materials for their vernacular elementary schools. (Eventually, in the beginning of 2007, we began working with some Oov speakers who have a very good knowledge of the Tuam dialect to adapt our Tuam dialect translation to the Oov dialect.)

In the beginning of 2000 we built a residence and office in Yaagha village, and began collecting texts and learning the Tuam dialect. Over the next couple of years, descriptions of the phonology and grammar were produced, and several linguistic papers treating isolated topics of the grammar were written. Compilation of a dictionary and production of various literacy materials have been ongoing activities. It was relatively easy to switch from Oov to Tuam. The grammatical phrase structure rules for the two dialects are virtually identical. There are no differences of basic word order in the noun phrase, clause, or sentence. There are, however, a number of morphological differences:

1. There are differences in the Tuam and Oov genitive suffixes occurring on nouns with obligatory genitives:

	Tuam	**Oov**	**Meaning**
his/her/its	lengthening of the stem	Ø	
	naatu	*natu*	his/her/its child
our (hearer included)	*-Vn*	*-Vn ~ Vd*	
	tazi-in	*tazi-id*	our (hearer included) younger sibling
	tama-an	*tama-an*	our (hearer included) father
their	*-z(i)*	*-(n)di*	
	tama-zi	*tama-ndi*	their father
	nima-zi	*nima-di*	their hand/arm

2. Tuam nouns that refer to people and have obligatory genitives are pluralized by adding a suffix *-ŋa*, while nouns having personal referents and optional genitives are pluralized with a prefix *zi- ~ zV-*, frequently in conjunction with a following suffix *-a*. In the Oov dialect, all personal nouns, regardless of the type of genitive they exhibit, are pluralized with the prefix *ndi- ~ nd(V)-*. Compare the following forms:

Tuam Form	**Oov Form**	**Meaning**
timbugŋa	*ndi-timbu-g*	my grand-relatives
natu-z-ŋa	*ndi-natu-di*	their children
zi-tamoot	*ndi-tamoot*	men
zi-naar-a	*ndi-naar-a*	widows

3. Some of the transitivity-changing morphology on the verbs is different in the two dialects.

4. The transitive suffixes occurring on verbs with third person singular objects are often different between the two dialects. Compare:

Tuam	**Oov**	**Meaning**
uul-e	*uul-i*	to help-TR
bood-e	*mbood-a*	to write-TR
waat-o	*waat-a*	to read/call-TR
rav-u	*rab-i*	to hit-TR
gham-u	*gham-i*	to do/get/give/receive-TR

On a standard word list, 75.5 percent of the items in the Tuam and Oov dialects are either identical or exhibit *regular* phonological correspondences. In addition to these, another 18.5 percent are phonetically similar, but fail to exhibit

regular sound correspondences. Illustrations of the phonological differences are given below:

	Tuam	**Oov**	**Meaning**
Phonologically regular correspondences	*zal*	*ndal*	to sink
	miza	*minda*	flesh, meat
	zige	*dige*	side
	um(b)	*ub*	steal
	siŋ	*sig*	carrying stick
	san(d)	*sad*	to snatch away
	ragh	*rag*	southeast wind
	atov	*atob*	thatching
Phonologically irregular correspondences, but the items are still phonetically similar	*eza*	*iza*	name
	ee	*eez*	a, one
	rekia	*rikia*	quickly
	yau	*you*	I
	atoli	*atulu*	egg
	mbitai	*mbiti*	fresh
	ataman	*ataam*	door
	siis	*isis*	grasshopper
	mako	*maau*	no, not
	leep	*neep*	be located at, exist, live
	burig	*mundig*	to get up, stand up, wake up
	tamtamon	*tamtoghon*	person
	nugh	*ndug*	place
	malaua	*mala*	long, tall
	saŋavul	*saaŋgul*	ten
	saghav	*savag*	to hold / catch hold of
	mindai	*vena*	how?
	lepoogh	*nepooŋ*	life
	poghania	*poian*	well (adverb)
	mbuzaagh	*buza*	knife

In addition to these relatively minor differences, a significant number of very common lexical items (6 percent on the standard word list) bear very little phonetic resemblance to each other.

Taken together, these morphological and lexical differences require the translations for the Tuam and Oov dialects to be significantly different from each other. Compare the following translations of Acts 3.7-8 in Tuam and Oov. Although the word-for-word back-translations of these are virtually identical, it can be readily seen how different they are from each other.

> Ra ikis ŋeer tana niima tapir ighe iiti iburig. Rekia mon ve ŋeer tana aaghe seŋgaaŋa poia. Tauvene purukia iburig iyooz ve ilaagh. Ra iyatyaat toman tintini, ve ipapait Maaron eeza, ve itaghon Petrus yesuru Yoan, gha tiloŋ tila sirsiir to Rumei Tiina loolo. (Tuam)

> Ghoro ikis ŋgeu tonenen nima waan ighaze indaea imundig. Rikia moghon ve ŋgeu tonenen aghe seŋgaŋa poia. Tovenen purukia imundig iyoon ve ilaagh. Ghoro iyatovtoova toman tini iza, ve ipapait Maaron iza, ve itaghon Petrus yesuru Yoan, ve yesŋa tiloon tila sirsiir to Rumai Tiina lolo. (Oov)

2. First steps with Adapt It

The first versions of the Adapt It program began to be available around the same time we were beginning some trial translation in the Tuam dialect. We were intrigued with the idea of the program, and decided to experiment with it, adapting our Mangaaba-Mbula translation into Tuam.

Lexically, 42 percent of Mangaaba-Mbula and Tuam items on a standard word list are either identical or exhibit phonologically regular correspondences. Another 25 percent of the items phonetically resemble each other, even though they are not phonologically regular. And roughly a third are completely different. The basic word order in noun phrases and clauses of both languages is extremely similar.

2.1. Areas of complexity which precluded a mechanical use of Adapt It

Despite the formal similarity of the grammars of the two languages, as the translation progressed, it soon became evident that there were several areas of complexity which precluded a mechanical use of Adapt It to produce a translation.

2.1.1. Differences in pronominalization rules

There is not a one-to-one mapping of pronouns between Mangaaba-Mbula and Tuam. Many times pronouns had to be added into the Tuam translation. Consider the following portion of Ps 51.4 "and done what is evil in your sight."

(1) *Mbulu* *tio* *na,* *i-rao* *pa* *moto-m* *som.*
behavior my DEM it-adequate OBL eye-your.SG not
'My behavior has been deficient in your (SG) sight.' (Mangaaba-Mbula. This is a literal rendering of the Mangaaba-Mbula. It conveys the meaning that the speaker's behavior has been inappropriate and very bad in God's eyes.)

(2) *Yau* *na-gham* *ŋgar* *saghati* *i-la* *yo* *matam.*
I I-do behavior bad it-go you.SG eye-your.SG
'I did bad behavior in your (SG) sight.' (Tuam)

In addition to the Tuam translation being closer to the original Hebrew text, note the second person singular nominative pronoun *yo* has been added. In Tuam, even though the inalienable noun *mata* 'eye' has genitive morphology indicating the identity of the eye's possessor, there normally also needs to be a nearby preceding coreferential noun phrase. A coreferential subject would have been sufficiently near. Although there is a coreferential noun phrase in the preceding sentence in the translation, this is not sufficiently near. Thus a pronoun needed to be added. In Mangaaba-Mbula, inalienable nouns exhibit no such requirement. Once a referent is established, inflexional morphology is often all that is required to track referents in a text. Interestingly, the Oov dialect is more like Mangaaba-Mbula in this regard.

(1) *You* *nagham* *ŋgar* *samia* *i-la* *Ø* *mata-m*
I I-do behavior bad it-go eye-your.SG
'I did bad behavior in your (SG) sight.' (Oov)

There are other sorts of examples, but the important thing to remember is that rules for pronominalization can vary between closely related languages and even between dialects.

2.1.2. Differences in the use of topicalization constructions

In Mangaaba-Mbula, topicalization constructions of the sort "A man, he . . ." (noun phrase plus coreferential pronoun) are used quite frequently in normal speech when introducing or reintroducing referents or when contrasting referents. Tuam and Oov have the same sort of construction, but it is used much less frequently for purposes of introducing referents. Therefore many of the pronouns in Mangaaba-Mbula topicalization constructions needed to be omitted in the Tuam and Oov translations in order for them to be natural. This can be seen in the following example from the beginning of Gen 3.

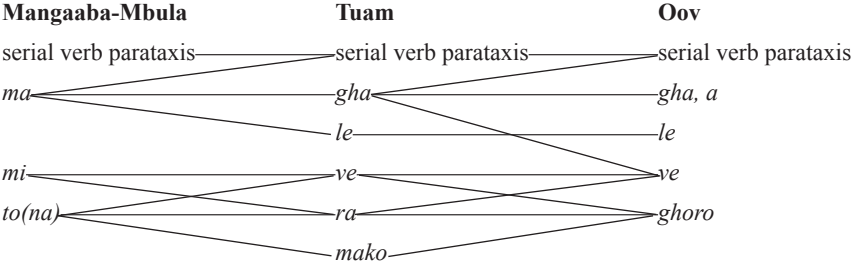
(1) *Mooto, ni tomini i-mbotmbot mokleene.*
snake it also it-stay+REDUP garden
'The snake, he also was in the garden.' (Mangaaba-Mbula)

(2) *Moot i-lepleep i-zi uum paam.*
snake it-stay+REDUP it-descend garden also
'The snake was also in the garden.' (Tuam)

Note also in these two examples the different placement of the adverbs *tomini* and *paam* 'also.' There are considerable differences in the placement of postverbal adverbs between Mangaaba-Mbula and Tuam/Oov.

2.1.3. Differences in the use of conjunctions

A third important difference among Mangaaba-Mbula, Tuam, and Oov that complicates the process of adaptation lies in the conjunction systems, particularly in narrated sequences of events. The most common mappings are diagrammed below.



In all three languages, serial verb parataxis, in which verbs and verb phrases are simply strung together under a single intonation contour with no intervening conjunction, is used to encode multiple subevents of a single complex event, where the action of the subevents is very continuous and the various subevents are either simultaneous or follow one another closely. The conjunction *ma* in Mbula and *gha*, *a*, and *le* in Tuam and Oov also express such a relationship. The telic conjunction *le* in Tuam and Oov has the additional semantic component of introducing the final element of such a sequence. *Mi* in Mbula and *ve* in Tuam and Oov are the most semantically neutral conjunctions. They coordinate sentences expressing multiple, *distinct* events, and can have interpretations of non-temporal coordination, simultaneity, temporal sequence, or mild contrast. Mbula *to(na)*, Tuam *ra* and *mako*, and Oov *ghoro* are used to express events with even less

temporal or action continuity. Tuam *ra* is favored in past contexts, while *mako* is used more in future or hypothetical ones.

Mangaaba-Mbula makes relatively little use of paratactic verb serialization. It is mainly confined to constructions with motion verbs expressing locative goals and places where an event takes place of the form 'put it it-go.down ground' (= put it down on the ground) and 'they do work it-go.down garden' (= they worked in the garden). Most events having multiple subphases are encoded using the conjunction *ma*, yielding sequences like:

3PL-return *ma* 3PL-come 'they came back'

3PL-hit him *ma* 3SG-die 'they killed him'

3SG-say to them *ma* 3PL-come 'he told them to come and they came' (= he had them come)

In Tuam and Oov, verb serialization constructions are much more frequent. The three preceding sequences would all be expressed using verb serialization with no intervening conjunction. The more common the complex event, the more likely it is to be expressed with verb serialization. *Gha* is used for less common complex events and those in which there is more linguistic material occurring between the two serialized verbs (that is, a full noun phrase object or prepositional phrases expressing locative, temporal, instrument, or benefactive adjuncts). The Oov dialect makes even greater use of verb serialization constructions than the Tuam dialect.

Because of the complexities of the mapping of conjunctions between languages and dialects, in many cases it was not possible to have Adapt It automatically yield the correct conjunction. Knowing this was an area of difficulty, co-translators were constantly encouraged to scrutinize each conjunction very carefully to select the most contextually appropriate equivalent. There is an important benefit, however, in beginning with a Mangaaba-Mbula source text. Occurrence of the conjunction *ma* is normally a reliable signal that one is dealing with something that will also be interpreted as a complex single event in Tuam and Oov, and will therefore be translated by paratactic serialization, conjunction with *gha*, or conjunction with *le*.

2.1.4. Differences in the use of demonstratives

Similar difficulties of mapping were observed with demonstratives. For anaphoric reference in narrative texts, Mangaaba-Mbula overwhelmingly prefers the demonstrative *tana*, which indicates entities that are close to the hearer, while the demonstrative *ti/tiŋgi* is used for cataphoric reference.

In Tuam and Oov narratives, the first anaphoric reference to narrative participants or props after they have been introduced is done using the far demonstratives *tawe* (Tuam) and *tonowe* (Oov) 'that over there,' which indicate that something is remote from both the speaker and the hearer. Subsequently, the demonstratives *tana* (Tuam) and *tonenen* (Oov), which indicate that something is close to the hearer, are used.

When words *within* a text are referred to, the close demonstratives *tane* (Tuam) and *tonene* (Oov) are used, whereas Mangaaba-Mbula maintains the normal practice of using *tana* for anaphoric reference. This is illustrated in the following examples from the beginning of Gen 4.13.

(1) *Kain i-leŋ sua tana, to i-so pa Merere i-so*
Cain he-hear talk that then he-say OBL Lord he-say
'[When] Cain heard <u>that</u> talk [of the Lord's], then he spoke to the Lord saying' (Mangaaba-Mbula)

(2) *Kain i-looŋ saveeŋ tane, ve i-saav pa Yoova i-ghe*
Cain he-hear talk this and he-say OBL Yahweh he-say
'Cain heard <u>this</u> talk [of Yahweh's], and spoke to Yahweh, saying' (Tuam)

The Tuam demonstrative *tana* conflates two corresponding Oov demonstratives: *tonenen* and *tononan*. *Tonenen* is used for *textual* deixis when anaphorically referring to textually given referents, while *tononan* is used more for *extra-textual* or situational deixis. Thus *tononan* is used when referring to items physically near the hearer/reader.

Given these differences, the Mangaaba-Mbula demonstrative *tana* has three possible translations in Tuam and four possible translations in Oov, which are contextually determined. Adapt It does not have the capability of automatically selecting the correct translation. The best it can do is to remind the translator that multiple translations are possible.

2.1.5. Semantic differences between cognate forms: semantic "splits"

One particularly treacherous aspect of adapting from a related language or another dialect of the same language is the fact that cognate forms often exhibit important semantic differences. Often these take the form of semantic "splits," where two senses of a form are translated with two different forms. Consider the following examples:

Mangaaba-Mbula	**Meaning**	**Tuam/Oov**
tiiri	1. evaluate, judge	*gabiiz* (T), *ŋgabiiz* (O)
	2. examine, inspect	*tiir*
koto	1. cover something	*tav* (T), *tatab* (O)
	2. subdue, overcome	*tatan* (T,O)
gabiizi / yaraama + reflexive pronoun	control, restrain	*tatan / yai* + reflexive pronoun
saamba	1. heaven	*sambam*
saamba / maŋaanaŋana	1. space, sky (place where the sun and the stars are located)	*sambam saamba* (T) *sambam paroŋania* (O)
	2.atmosphere, sky (place where the clouds are and birds fly)	*taitai saamba* (T) *tata* (*paroŋania*) (O)
kopo- mbarmaana	under the authority of	*saamba* (T) *samba* (O)
mbarmaana	physically underneath	*saamba* (T), *paroŋania* (O)
re	1. see, look at	*ghita* (T,O)
	2. view, consider	
re + accusative pronoun	3. watch out, take care, be wary	*yamaan* + accusative pronoun (T) *patum* + accusative pronoun (O)
yamaana	1. feel, sense	*yamaan* (T, O)

Note here that while *gabiizi* in Mangaaba-Mbula has the sense 'practice self-control, restrain oneself,' in Tuam and Oov *(ŋ)gabiiz* has the sense of 'judge, evaluate.' The Tuam and Oov expressions indicating self-restraint are *yai* 'restrain' or *tatan* 'cover' plus a reflexive pronoun. Mangaaba-Mbula *tiiri* 'inspect, examine' in its most concrete sense of visually inspecting something has the clearly cognate Tuam and Oov equivalent *tiir*. But the Tuam and Oov equivalent of *tiiri*'s more abstract sense of 'evaluate' or 'judge' is *(ŋ)gabiiz*. When we began translating, it was common for the national co-translators to mechanically substitute *(ŋ)gabiiz* for *gabiizi*, rather than using *yai* and *tatan*. The phonological similarity of cognate forms seems to be a confusing factor in the translation situation.

Similarly, in the beginning, *tiiri* was consistently translated with *tiir*, even when it had the sense of 'judge, evaluate.' But in the process of further checking and discussing passages with the national co-translators, the more natural equivalent of *(ŋ)gabiiz* emerged for 'judge.' As the semantic ranges of words became clearer, it was necessary to backtrack and reexamine all occurrences of the forms *tiir* and *(ŋ)gabiiz* in Tuam and Oov and correct the instances that were incorrect.

An interesting example from the physical world has to do with the expressions for 'heaven' and 'sky.' Mangaaba-Mbula, Tuam, and Oov have the clearly cognate forms *saamba* and *sambam*, which refer to the place where God and the angels and the souls of the redeemed are. Differences emerge when the reference is to either (1) sky/space/place where the sun, moon, and stars are; or (2) sky/atmosphere/place where the clouds are and birds fly.

Mangaaba-Mbula usually uses *saamba* for both of these concepts as well, although it also has a form *maŋaanaŋana* which subsumes both of these senses of 'sky.' In Tuam and Oov, these senses are distinguished as *sambam saamba* 'underneath heaven' / *taitai saamba* 'underneath clouds' (Tuam) and *sambam paroŋania* 'underneath heaven' / *tata* (*paroŋania*) '(underneath) sky' (Oov).

Whereas Tuam has a single form *saamba*, expressing being physically underneath something and being under the authority of someone or something, Mangaaba-Mbula and Oov distinguish these notions as *mbarmaana* 'physically under' versus *kopo mbarmaana*, literally, 'under the stomach of' (Mbula); and *paroŋania* versus *samba* (Oov).

The process of discovering that a mechanically translated cognate form has some senses which require different equivalents in the target language and then having to go back and correct all of the mistaken literal translations is one that was frequently repeated throughout the course of the translation program.

2.1.6. Body-image expressions

In all three languages, most emotions and cognitive activities are expressed using body-image expressions. For example, in Mangaaba-Mbula, the notion that God demonstrates *hesed* 'steadfast love' towards his people is usually translated as *Merere iurur leleene pa wal kini* (*mi itoto sua kini mbukŋana*) 'The Lord continually puts his insides towards his people (and follows his promises).'

While many of these sorts of expressions are literally transferable between Mangaaba-Mbula, Tuam, and Oov, a significant number are not. So in practice, each expression needed to be checked in different contexts on multiple occasions before the correct translation equivalent could be firmly established.

Thus, in the example just cited, the Tuam equivalent of God demonstrating his *hesed* towards his people is *Maaron loolo isaghav tamtamon tooni* 'God's insides hold on to his people.' The Oov equivalent is *Maaron lolo ineep tuŋia ila to tamtoghon toni* 'God's insides are firm towards his people.'

2.2 The translation process

Because of the sorts of differences described above, the initial output straight from Adapt It could not be viewed as being a first-draft translation. Instead, our translation team viewed it more as a starting point from which to begin the process of translation. Our normal procedure for drafting translation was as follows:

1. A single verse was adapted.

2. We then examined the verse carefully, checking conjunctions, demonstratives, use of pronouns, use of fronted constituents, and any new idiomatic expressions, modifying the output from Adapt It where necessary for better naturalness. Also, the resultant text was compared with the original languages and other major language translations for accuracy. Key theological concepts and biblical terms were discussed with the co-translators as they were encountered in the text. This was a very important and meaningful part of the translation process for them personally. They repeatedly expressed their desire to grow in their understanding of the Bible, and viewed the translation process as being very helpful in that regard. Often they took personal notes of these discussions, in order to be able to share the ideas with other members of their community. As their biblical knowledge grew, they became more confident in their judgments of the acceptability of the translation that was being produced and became increasingly able to correct the initial output from Adapt It.

In the Mangaaba-Mbula to Tuam translation, it was not uncommon to do a complete retranslation. Despite the fact that my wife and I supervised the Mangaaba-Mbula translation, in the process of doing the new translation we felt that there were a number of places where the accuracy of the Mangaaba-Mbula translation should and could be improved. And sometimes there was just a completely different way of saying things in the Tuam and Oov dialects. It was quite rare to have to do a retranslation when adapting from Tuam to Oov.

When adapting from Mangaaba-Mbula to Tuam, or from Tuam to Oov, the national co-translators were frequently reminded that the output of Adapt It was just a "suggestion" from the computer, and they should feel very free to change it if they felt the translation would thereby be improved. When the Oov dialect translators suggested a very different translation, they often wanted to discuss the verse with the Tuam dialect translators. Frequently their suggestions for rephrasing actually turned out to be better for the Tuam dialect as well. So the Oov adaptation actually served as an additional check on the Tuam translation.

3. Steps 1 and 2 were repeated for each following verse until a discourse section was completed.

4. At this point, the Adapt It view was changed to "Show Target Text Only" and the whole discourse section was read through again to make sure that the text flowed well, and any other changes needed to improve accuracy or fluency were inserted. The output at this stage was considered to be the first draft.

5. At the end of each day, the translation produced during the day was exported from Adapt It to a standard format file and placed in Paratext. From this point onwards, all editing of the text took place in the Paratext environment, since Adapt It is a rather clumsy editing environment.

In essence, Adapt It was used as a substitute for beginning with a blank piece of paper. But once the first draft stage of translation had been reached, from that point onwards the translation process was no different from that followed in the Mangaaba-Mbula translation program. The first draft was subsequently read through and revised multiple times by different reviewers, and portions were distributed to be used in church lectionary readings and feedback solicited in order to improve the naturalness and accuracy of the translation. Throughout the translation process, the national co-translators and other reviewers in the community were the final authority in judging the acceptability of the translation.

This same procedure was followed for both the translation from Mangaaba-Mbula to Tuam, and the dialect adaptation from Tuam to Oov, but fewer revisions were necessary for the dialect-to-dialect adaptation.

3. Differences between doing an adaptation between languages and between dialects

There are several important differences between adapting from one language to another language, and adapting from one dialect of a language to another dialect. Adaptation between dialects obviously proceeds much more quickly. Between dialects, after two gospels had been completed, rough drafts could be produced at the rate of 15-20 verses an hour for narratives and 7-10 verses an hour for epistle material. In contrast, 8-10 verses an hour was a more typical rate for first drafts of narrative material in the Mangaaba-Mbula to Tuam adaptation.

The optimal size of translation equivalents was also different for the language–language and dialect–dialect adaptations. Between dialects, it was usually best to use word-to-word equivalents, whereas between languages it was better to translate phrase by phrase. In particular, it was often best to adapt the combination of the verb plus object noun phrase or verb plus prepositional phrase complement as units. One does not get as much mileage out of such combinations because of their being so specific, but they are more likely to correspond to distinct senses of verbs. Likewise, it proved better to treat Mangaaba-Mbula serial verb constructions and the clauses conjoined with *ma* which express single complex events as units for translation purposes.

4. Conclusion: Some advantages and disadvantages of using Adapt It

The Adapt It computer program is not a magical means of producing a translation in a year. Using it, the Saveeng translation team has still taken roughly ten years to do the Tuam translation and four years to do the adaptation into the Oov dialect. By way of comparison, the Mangaaba-Mbula translation took fifteen years. So use of the program shortened the process by a factor of one third. But there are other benefits.

In adaptation from one language to another related language or another dialect of the same language, many ways of saying things *are* very similar. Much of the restructuring or reordering of clauses carries over well between source and target languages. This happens automatically with Adapt It.

Between dialects, when there are a large number of items to be adjusted in each verse and the translation equivalents are already known and entered into the Adapt It knowledge base, the program remembers to change them *all*. Co-translators beginning with a blank sheet of paper adjust some of them, but often forget to change others. There seems to be some sort of psychological limit on how many things a person can fix at one time! One hopes, of course, that subsequent revisions would catch the things that slip through in the rough draft, but it is obviously good to get as many as possible translated correctly in the first draft.

Use of Adapt It helps to maintain more consistent spelling.

Use of Adapt It can help to remind the translator of things that need to be fixed in earlier translated material. When translating a verse, if the co-translators suggest a translation equivalent different from what Adapt It is offering, this may be a signal that some earlier translation needs to be corrected.

Using Adapt It has some disadvantages. As an editing environment, it is clumsy. Therefore, we found it was best to get the translated text out of Adapt It and into Paratext as soon as possible. And the program can operate *too* quickly. If the translation team is not regularly pausing to think carefully about the accuracy and naturalness of the output of the program, one can generate a lot of poor quality translation very quickly. Also, if a poor translation equivalent for some word or phrase is chosen in the beginning, the program will automatically perpetuate that poor choice in all future translation, unless the translators somehow come to realize that a different equivalent would be better. Because of this, it is best to go slowly with Adapt It in the beginning, and do a lot of checking of one's initial translation efforts with different people to identify and weed out these poor initial translation choices.