

## Minimal/Augmented in the Philippines: an Areal and Genetic Survey

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### 1 Dual inclusive is no dual

Iloko pronouns, traditional analysis (Bloomfield 1942: 194)

	singular	dual	plural
1 inclusive	<i>co</i>	<i>ta</i>	<i>tayo</i>
1 exclusive			<i>mi</i>
2	<i>mo</i>	<i>yo</i>	
3	<i>na</i>	<i>da</i>	

Iloko pronouns, minimal/augmented analysis (Thomas 1955; Conklin 1962; McKay 1978)

	minimal	augmented		
1+2	<i>ta</i>	<i>tayo</i>	1+2	+3
1	<i>co</i>	<i>mi</i>	1	+3
2	<i>mo</i>	<i>yo</i>	2	+3
3	<i>na</i>	<i>da</i>	3	+3

‘When, therefore, we speak of a first person plural, we mean logically either self and person addressed, or self and person or persons spoken of, or finally, self, person or persons addressed, and person or persons spoken of. A true first person plural is impossible, because there can never be more than one self. I do not know of any language expressing in a separate form the combination of the three persons, probably because this idea readily coalesces with the idea of self and person spoken to.’ (Boas 1911: 39)

## 2 North Philippine

### 2.1 *Bashiic*

	Minimal inclusive	Augmented inclusive
Itbayaten	yatin	
Ivatan	yatin	

only /t/ remains of proto inclusive *\*kita*, cf. *yakin* ‘I’ and *yamin* ‘we exclusive’

### 2.2 *Northern Cordilleran/Negrito languages*

	Minimal inclusive	Augmented inclusive
Agta, Central Cagayan	ʔikita	ʔikitam
Alta	siʔeta	siʔetam
Arta	tallipita	kitam
Atta, Pamplona	sitta	sittam
Ibanag	sitta	sittam
Dumagat, Casiguran	sikita	sikitam
Gaddang		ʔikkanetam
Isneg	daʔta	daʔtada
Itawis	itta	ittera
Yogad	sikita	sikitam

– The suffix marking the augmented inclusive can be reconstructed for Proto-Northern Cordilleran as *\*-m*

– A different formation is found in Isneg and Itawis. These languages use the third person plural enclitic *\*-da* to mark augmented inclusive.

– Gaddang has lost the oppositions between minimal and augmented inclusive. The remaining inclusive appears to be the formerly augmented inclusive on *-m*, the minimal inclusive being lost. A comparable loss of the inclusive form can also be attested in the nearby Southern Cordilleran languages Ilongot and Karaw (see below).

### 2.3 *Central Cordilleran*

	Minimal inclusive	Augmented inclusive
Balangaw	dita	dita:w
Bontoc, Guinaang	data, daʔita	datako
Ifugao, Amganad	dita	ditaʔʔu
Ifugao, Batad	dita	dituʔu
Ifugao, Bayninan	dita	dituʔu
Itneg, Binongan	dita	ditayo
Isinai	dita	ditaʔu
Kalinga	dita	ditaku
Kalinga, Bangad	sita	sitaʔu
Kalinga, Guinaang	dita	ditaʔo
Kalinga, Masadiit	dita	ditakay
Kankanay, Northern	daʔita	datako

- The suffix marking the augmented inclusive can be reconstructed for Proto-Central Cordilleran as *\*-ku*. There is a regular sound change reducing *\*k > ʔ* in the southern and eastern languages. The stop is completely lost in Balangaw, only leaving a suffix *-w* to mark augmented.
- Itneg has a formative *\*yu* for the augmented, a construction of Southern Cordilleran languages (see below). Itneg acquired this suffix probably under influence of Southern Cordilleran language Iloko.
- Note the usage of the plural plus nominative case marker *\*da + \*ʔi > \*di* for both inclusives. The same plural marker *\*da* is also found in Iloko and in the neighbouring Northern Cordilleran language Isneg. The plural case marking *\*da* is also used for the minimal inclusive, suggesting that this minimal pronoun was still considered a plural pronoun at the time of the innovation of the plural case marker.

#### 2.4 Southern Cordilleran/Iloko

	Minimal inclusive	Augmented inclusive
Iloko	data	datayo
Ilongot, Kakiduge:n		sikisi
Ilongot, Sitio Payo	sikíta	siki:si
Inibaloi	siʔkata	siʔkatajo
Kalanguya, Hanglulaw	hítaʔ	hityúʔ
Kallahan, Kayapa	hiʔgata	hiʔgatayu
Kallahan, Keleyqiq	hiʔgataʔ	hiʔgatyuʔ
Karaw	siʔkáθa	siʔkáθayo
Pangasinan	sikita	sikitayo

- The suffix *\*yu* is an old plural marker. It is also found to mark plurality in the second person throughout Philippine languages. The suffix *\*yu* is also found in Iloko, although this is strictly speaking not a Southern Cordilleran language.
- In Hanglulaw Kalanguya, the same suffix *yu* is found, though the inclusive root looks more like a Central Cordilleran form. This might be the result of inference from the surrounding Ifugao.
- The Ilongot form *sikisi* is a regular reduction of an original suffix:  
*\*sikitayu > \*sikitay > \*sikitiy > \*sikiti > \*sikisi*
- For Kakiduge:n Ilongot no opposition is reported between minimal and augmented inclusive; the minimal inclusive appears to be lost. There appears to be a little cluster of languages losing the minimal/augmented opposition here. First, the nearby Northern Cordilleran language Gaddang also has lost the minimal inclusive. Second, in Karaw, the geographically nearest Southern Cordilleran language, the genitive of the minimal inclusive is falling out of use. In this case a new augmented inclusive is reinvented by adding a third plural suffix *-ča*

#### 2.5 Sambalic

	Minimal inclusive	Augmented inclusive
Kapampangan	ʔikata	ʔitamu
Sambal, Botolan	hita	hitamo
Sambal, Tina	hita	hitamo

The suffix *\*-mu* is synchronically alike to the second person singular genitive

### 3 Meso-Philippine

#### 3.1 Mangyan

	Minimal inclusive	Augmented inclusive
Alangan	kita	kitam
Buhid		tam
Hanunóo	kita	kitam
Iraya	kita	tamu
Tadyawan	ta	tam

- the suffix *\*-m(u)* is synchronically not found as genitive in these languages
- Iraya innovated a complete dual set (leading to a partial-unit-augmented paradigm) on the basis of the numeral *duwa*, meaning ‘two’

#### 3.2 Palawan

	Minimal inclusive	Augmented inclusive
Banggi	kita	kiti
Batak, Palawan	kita	kitami
Palawan	kitä	kisju
Tagbanwa, Aborlan	ta	tami
Tagbanwa, Kalamian		?ita

- The southernmost languages Banggi and Palawan, the augmented forms go back on a plural suffix *\*yu*, like in Southern Cordilleran. In Banggi, the reduction could have been *\*kitayu* > *\*kitay* > *\*kityi* > *kiti*, just like in Ilongot (see section 2.4). In Palawan, the reduction could have been *\*kitayu* > *\*kityu* > *kisju*.
- The northernmost languages Batak and Tagbanwa only recently innovated the augmented forms by adding the second person plural enclitic genitive *-mi* to the inclusive *\*kita*.

#### 3.3 Central Philippine

	Minimal inclusive	Augmented inclusive
Tagalog	kata	tayo
Bikol		kita
BISAYAN		
Aklanon		kita
Bantoanon		kita
Butuanon		kita
Cebuano		kita
Hiligaynon		kita
Kinaray-a		kita
Ratagnon		kita
Tausug	kitah	kitaniuh
Waray-waray		kita
EAST MINDANAO		
Kalagan	kita	kitadun
Mamanwa	kita	kitamazu
Mansaka		kita

- Tagalog borrowed *-yo* from Southern Cordilleran, though only in some variants
- Tausug and Mamanwa innovated augmented with second person plural
- Kalagan innovated augmented with third person plural

## 4 Geographically Southern Philippine

### 4.1 South Philippine

	Minimal inclusive	Augmented inclusive
DANAŌ		
Iranun	ta	tanu
Magindanao	sikita	sikitānu
Maranao	sikta	siktānu
CENTRAL MANOBO		
Manobo, Ata		sikanta
Manobo, Dibabawon	(sik)ita	itanīw
Manobo, Ilianen	sikita	sikitīw
Manobo, Western Bukidon	sikita	sikitīw
NORTHERN MANOBO		
Binukid	sikit	sikuy
Kagayanen		kitin
SOUTHERN MANOBO		
Manobo, Cotabato		kita
Manobo, Sarangani	sikita	sikitadon
Manobo, Tigwa		sikanta
SUBANON		
Subanon, Siocon		ita
Subanon, Sindangan		ita

- Proto-Danao augmented *\*-nu* (from *\*-mu* ???)
- Proto-Manobo probably no minimal/augmented
- Ilianen, Western Bukidnon: *\*sikita-yu* > *\*sikitiyu* > *\*sikitū* > *sikitīw*
- Dibabawon newly build augmented with second plural genitive:  
*\*sikita-niyu* > *\*sikitanīyu* > *\*sikitanīu* > *\*sikitanīw* > *itanīw*
- Ata: enclitic pronouns newly build augmented like Dibabawon *ki+niw*
- Sarangani: augmented made with third person plural genitive (cf. Kalagan)

### 4.2 South Mindanao

	Minimal inclusive	Augmented inclusive
Bilaan, Koronadal	ʔati	ʔato
Bilaan, Sarangani	ʔiti	ʔito
Tboli	tuh	tikuy
Tiruray	beto	betom

- Bilaan: *\*ʔita-yu* > *\*ʔiti* (??)
- Tboli innovated augmented with second plural genitive *-kuy*

### 4.3 Sulawesi

	Minimal inclusive	Augmented inclusive
Sangil	ʔi kadua	ʔi kiteʔ
Sangir	i kadua ini	i kiteʔ

– \**dua* is the numeral ‘two’, which in Sangal forms a complete dual set, but in Sangir only the dual inclusive. In this case, the dual forms are basic, and the minimal/augmented set in Sangir has developed by Philippine influence.

### 4.4 Sama-Bajau

	Minimal inclusive	Augmented inclusive
Mapun	kita	kitabī
Samal	kita	kitabī (kitam ?)
Yakan	kite	kite bi

-*bi* is the second plural genitive.

### 4.5 Borneo

	Minimal inclusive	Augmented inclusive
NORTHWEST		
Baukan	ito	itakaw
Bisayah		tokou
Dusun, Kadazan	kito	tokow
Kelabit	kiteh	tauh
Samambuq	ito	itakaw
Timugon	ito	itakaw
SABAHAN		
Ida'an		kito
KAYAN		
Uma Juman	ituʔ	itam
LAND DAYAK		
Dayak	koä	ita

– In the Northwest languages (except Kelabit), *-okow/akaw* is second person plural pronoun (not genitive!). Bisayah appears to have lost the minimal form.

– Kelabit, Uma Juman and Dayak have a complete dual set, though these seem to be relatively new additions based on numerals, except for the inclusive dual.

	Kelabit	Uma Juman	Dayak
Inclusive dual	kiteh	ituʔ	
Exclusive dual	kediweh	kawaʔ	koä
Second dual	medueh	kuaʔ	keton duä
Third dual	diweh	dahuʔ	äwen duä
Numeral ‘two’	dueh	duaʔ	duä

## 5 Data Sources

Language Name	SIL-code	Source
Agta, Central Cagayan	AGT	Reid 1971: 1; Healey 1960: 15-16
Aklanon	AKL	Zorc 1977: 70
Alangan	ALJ	Zorc 1974: 569-571
Alta, Northern	AQN	Reid 1994: 455, 466; Vanoverbergh 1937: 117
Alta, Southern	AQY	Reid 1994: 455
Arta	ATZ	Reid 1989: 67
Atta, Pamplona	ATT	Reid 1971: 2
Balangaw	BLW	Reid 1971: 3; Reid 1974: 520-526
Banggi	BDG	Boutin 1988: 15
Bantoanon	BNO	Zorc 1977: 70
Batak, Palawan	BTK	Reid 1971: 4
Baukan	BNB	Prentice 1971: 284
Bikol	BKL	Reid 1979: 270
Bilaan, Koronadal	BIK	Reid 1971: 5
Bilaan, Sarangani	BIS	Reid 1971: 6
Binukid	BKD	Reid 1971: 7; Harmon 1979: 119-121
Bisayah	BSY	Omar 1979: 13
Bontoc, Guinaang	BNC	Reid 1971: 8
Buhid	BKU	Zorc 1974: 569-571
Butuanon	BTW	Zorc 1977: 70
Cebuano	CEB	Wolff 1966: 14
Dayak	DYK	Hardeland 1858: 97
Dumagat, Casiguran	DGC	Reid 1971: 9
Dusun, Kadazan	KZS	Gossens 1924: 90
Gaddang	GAD	Reid 1971: 10
Hanunóo	HNN	Conklin 1962: 134-135; Zorc 1974: 569-571
Hiligaynon	HIL	Wolfenden 1971: 171
Iban	IBA	Omar 1977: 91
Ibanag	IBG	Vanoverbergh 1937: 118
Ida'an	DBJ	Moody 1988: 83
Ifugao, Amganad	IFA	Reid 1971: 11
Ifugao, Batad	IFB	Reid 1971: 12
Ifugao, Bayninan	IFB	Reid 1971: 13
Iloko	ILO	Vanoverbergh 1955: 72
Ilongot, Kakiduge:n	ILK	Reid 1971: 14
Ilongot, Sitio Patio	ILK	Himes 1998: 142
Inibaloi	IBL	Himes 1998: 142
Iranun	ILL	McKaughan 1999: 55
Iraya	IRY	Tweddel 1958: 46; Zorc 1974: 569-571
Isinai	INN	Reid 1974: 520-526
Isneg	ISD	Reid 1971: 16
Itawis	ITV	Tharp 1974: 88
Itbayaten	IVB	Reid 1971: 17
Itneg, Binongan	ITB	Reid 1971: 18
Ivatan	IVB	Reid 1971: 19
Kagayanen	CGC	Harmon 1979: 119
Kalagan	KQE	Reid 1971: 20
Kalanguya, Hanglulaw	IFY	Himes 1998: 142-143
Kalinga	KSC	Himes 1997: 111; Reid 1974: 522
Kalinga, Bangad	KSC	Himes 1997: 111
Kalinga, Guinaang	KNB	Reid 1971: 21
Kalinga, Masadiit	TIS	Himes 1997: 111
Kallahan, Kayapa	KAK	Reid 1971: 22
Kallahan, Keleyqiq	IFY	Reid 1971: 23
Kankanay, Northern	KAN	Reid 1971: 24
Kapampangan	PMP	Gonzales 1981: 172-173
Karaw	KYJ	Himes 1998: 142-143
Kelabit	KZI	Blust 1993
Kinaray-a	KRJ	Reid 1979: 270

Magindanao	MDH	llamzon 1978: 133
Mamanwa	MMN	Llamzon 1978: 124
Manobo, Ata	ATD	Reid 1971: 26; Harmon 1979: 119-121
Manobo, Cotabato	MTA	Reid 1971: 29; Harmon 1979: 119-121
Manobo, Dibabawon	MBD	Reid 1971: 27; Harmon 1979: 119-121
Manobo, Ilianen	MBI	Reid 1971: 28
Manobo, Sarangani	MBS	Reid 1971: 30; Harmon 1979: 119-121
Manobo, Tigwa	MBT	Reid 1971: 31
Manobo, Western Bukidon	MBB	Reid 1971: 32; Harmon 1979: 119-121
Mansaka	MSK	Reid 1971: 33
Mapun	SJM	Collins et al. 2001
Maranao	MRW	McKaughan 1959; Llamzon 1978: 128-129
Palawan	PLC	Revel-macdonald 1979: 137
Pangasinan	PNG	Benton 1971: 83-84
Ratagnon	BTN	Zorc 1977: 70
Samal	SML	Reid 1971: 34
Samambuq	SMA	Prentice 1971: 296
Sambal, Botolan	SBL	Reid 1971: 35; Antworth 1979: 7
Sambal, Tina	SNA	Elgincolin et al. 1988: 178
Sangil	SNL	Reid 1971: 36
Sangir	SAN	Reid 1971: 37
Subanon, Siocon	SUC	Reid 1971: 39
Subanun, Sindangan	SUS	Reid 1971: 38
Tadyawan	TDY	Zorc 1974: 569-571
Tagalog	TGL	Schachter & Otones 1972: 88
Tagbanwa, Aborlan	TGT	Reid 1971: 41
Tagbanwa, Kalamian	TBK	Reid 1971: 42
Tausug	TSG	Reid 1971: 43
Tboli	TBL	Porter 1977: 35-36
Timugon	TIH	Prentice 1971: 169
Tiruray	TIY	Schlegel 1971
Uma Juman	REE	Blust 1977: 40
Waray-waray	WRY	Zorc 1977: 70
Yakan	YKA	Languages [...] 1979: 19
Yogad	YOG	Healey 1958: 80-81

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A growing urban area and human population density can affect the mosquito populations on a genetic level. An increase in urbanization can reduce genetic diversity and promote homogenization of the genetic structure of mosquito populations. Although dengue is endemic in the Philippines, there are a limited number of studies that investigate the population genetics of *Ae. aegypti* in the country. These studies revealed the seasonal genetic structuring and expansion of the mosquito vector [28] and the connectivity among its populations from different island seaports [29], but provide little insight into genetic structuring of *Ae. aegypti* in highly urbanized and dengue-endemic regions in the country. After the Philippines became an independent nation in 1946, the politics of the nation remained as it was during the period before the war even though in theory, it was a constitutional republic similar to that of the United States. However, the gap in income between the wealthy landlords and their tenants and the landless workers was so great that it led to the problem of agrarian unrest and the Huk movement. This paper surveys the current state-of-the-art in Augmented Reality. It describes work performed at many different sites and explains the issues and problems encountered when building Augmented Reality systems. It summarizes the tradeoffs and approaches taken so far to overcome these problems and speculates on future directions that deserve exploration. A survey paper does not present new research results. The contribution comes from consolidating existing information from many sources and publishing an extensive bibliography of papers in this field. While several other introductory papers ha