Gender, mobility and population history: exploring material culture distributions in the Upper Sepik and Central New Guinea

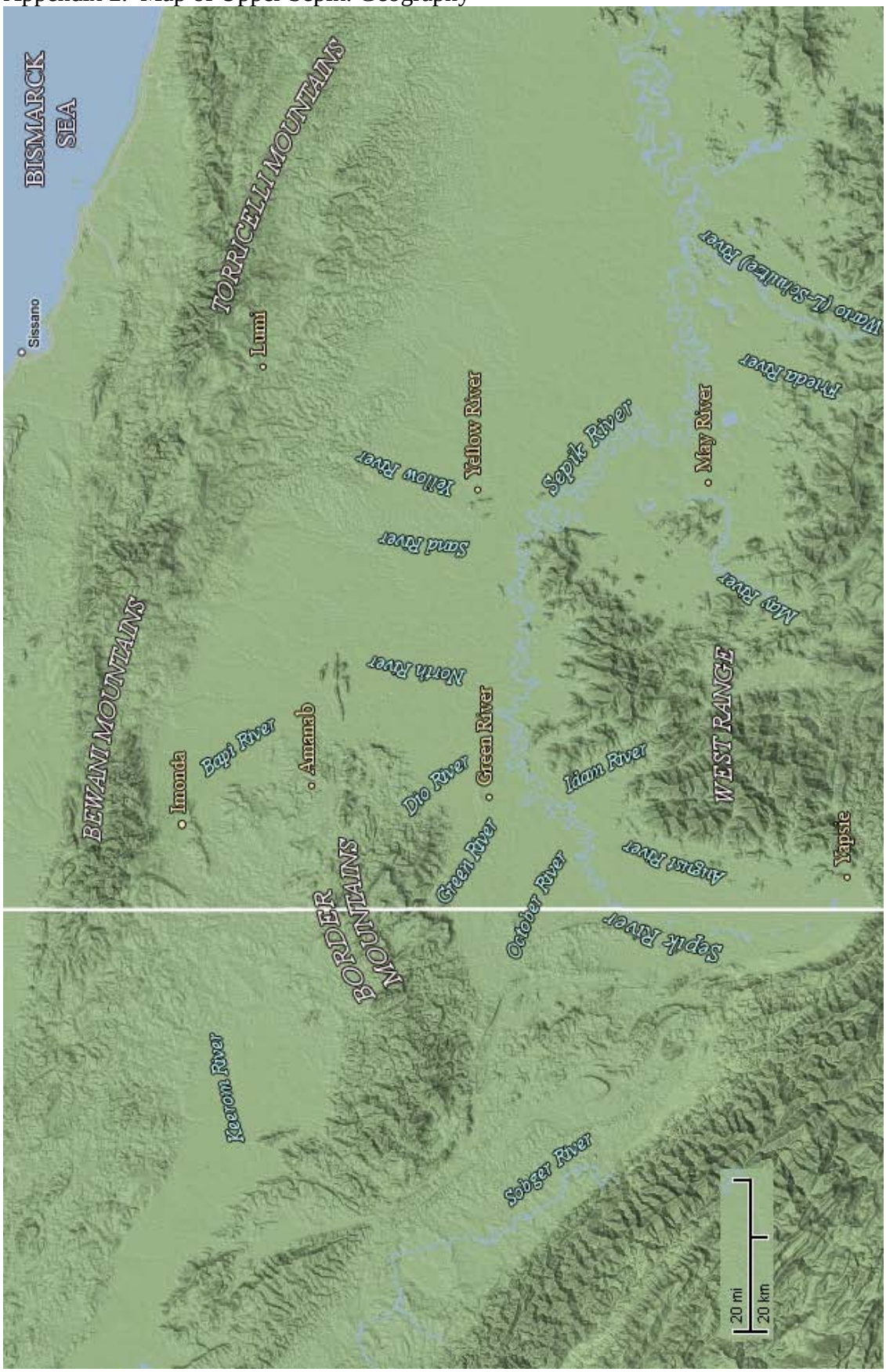
Appendices

List of Appendices

Appendix 1. Commonly used acronyms

ANOVA	Analysis of variance
ASL	Above sea level
BATT	Blade attachment
BBA	Bamboo bladed arrow
BCS	Blade cross-section
BDLPG	Body looping
BLDLGTH	Blade length
BMOD	Blade modification
BP	Before Present
BTA	Bone tipped arrow
CA	Correspondence analysis
CNG	Central New Guinea
GIS	Geographical Information Systems
HDLGTH	Head length
HCS	Head cross-section
HMOD	Head modification
HTMXW	Height to maximum width
LPG	Looping
MNTMXW	Minimum to maximum width
MTHBDATT	Mouthband attachment
MTHFN	Mouth finish
NCNG	North-Central New Guinea
NN	No number
NFC	Notched Foreshaft Culture
PBF	Plain unspun bast fibre
PNGASP	Papua New Guinea Agricultural Systems Project
PNGNMAG	Papua New Guinea National Museum and Art Gallery
PWHA	Palm wood headed arrow
RMV	Rijksmuseum voor Volkenkunde, Leiden
SBST	Subsistence
SPT	Single penetrating tip
STMCRCS	Stem core cross- section
STRCT	Structure
STRPATT	Strap attachment
STRPLPG	Strap looping
TRIMS	Transmission Isolating Mechanisms
USB	Upper Sepik Basin
USCNG	Upper Sepik-Central New Guinea
USCNGP	Upper Sepik-Central New Guinea Project
WSAS	West Sepik Agricultural System
WHLGTH	Whole length

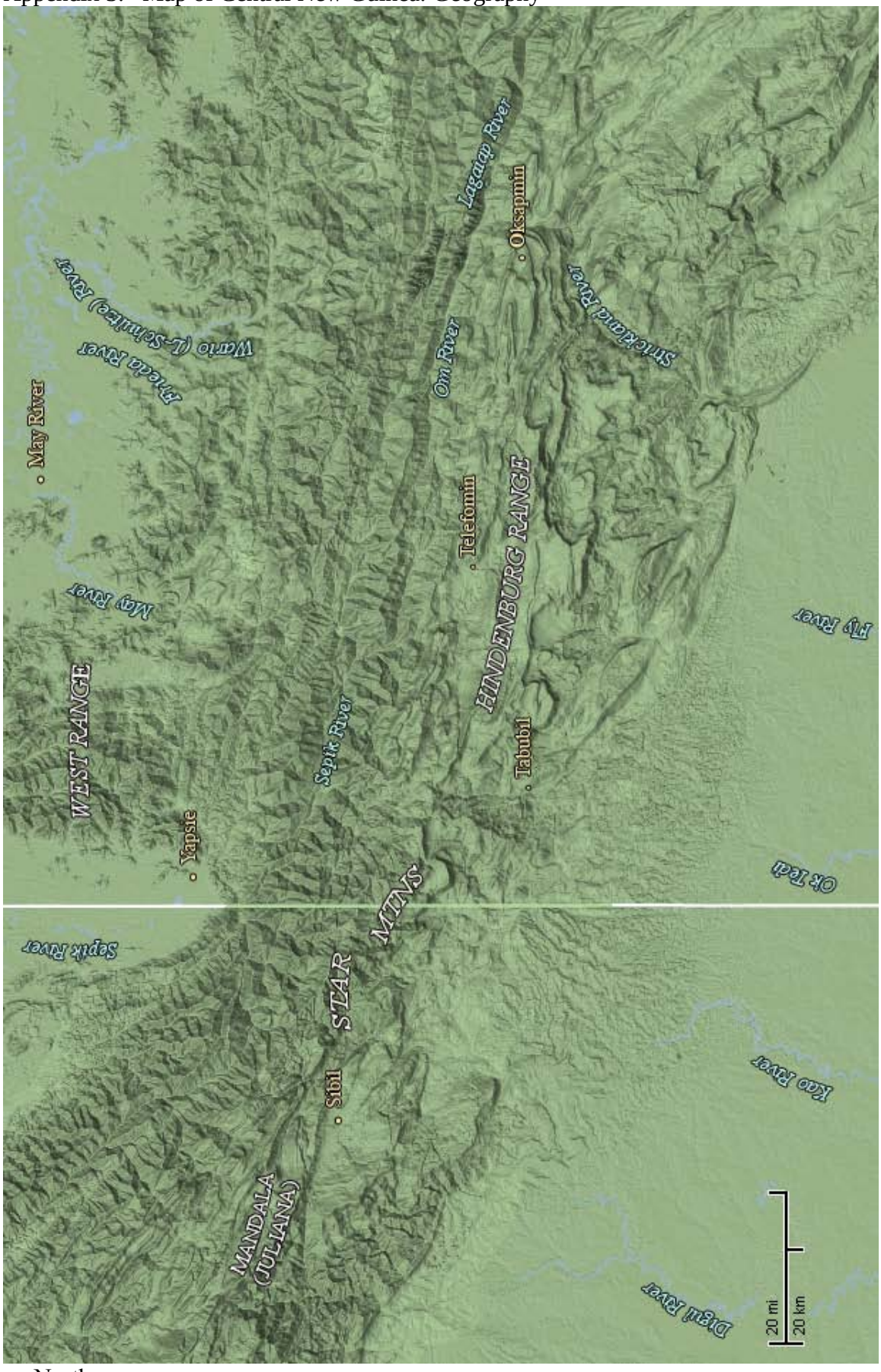
Appendix 2. Map of Upper Sepik: Geography



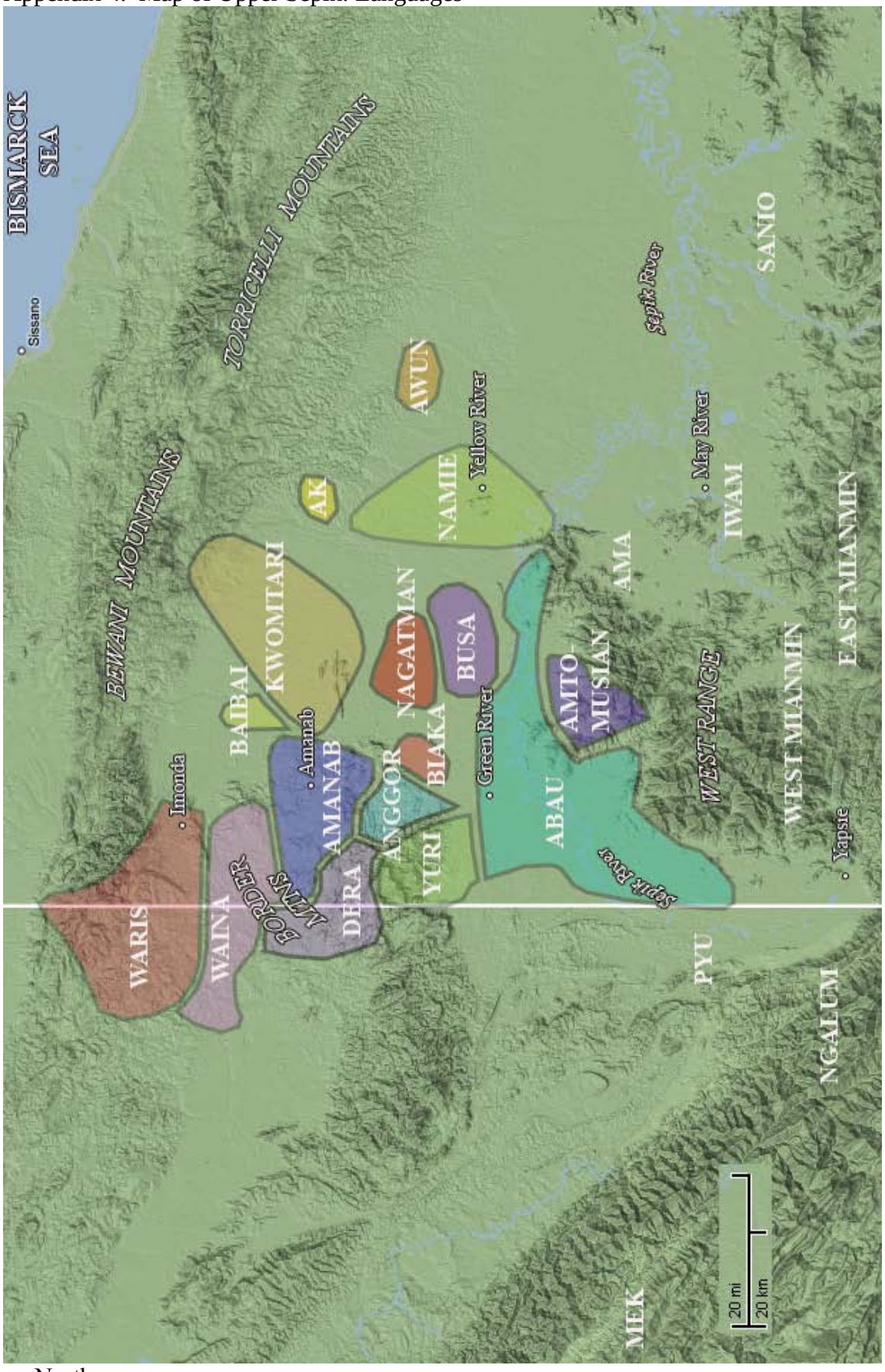
← North

Note: white line marks border between PNG and [West] Papua, Indonesia.

Appendix 3. Map of Central New Guinea: Geography

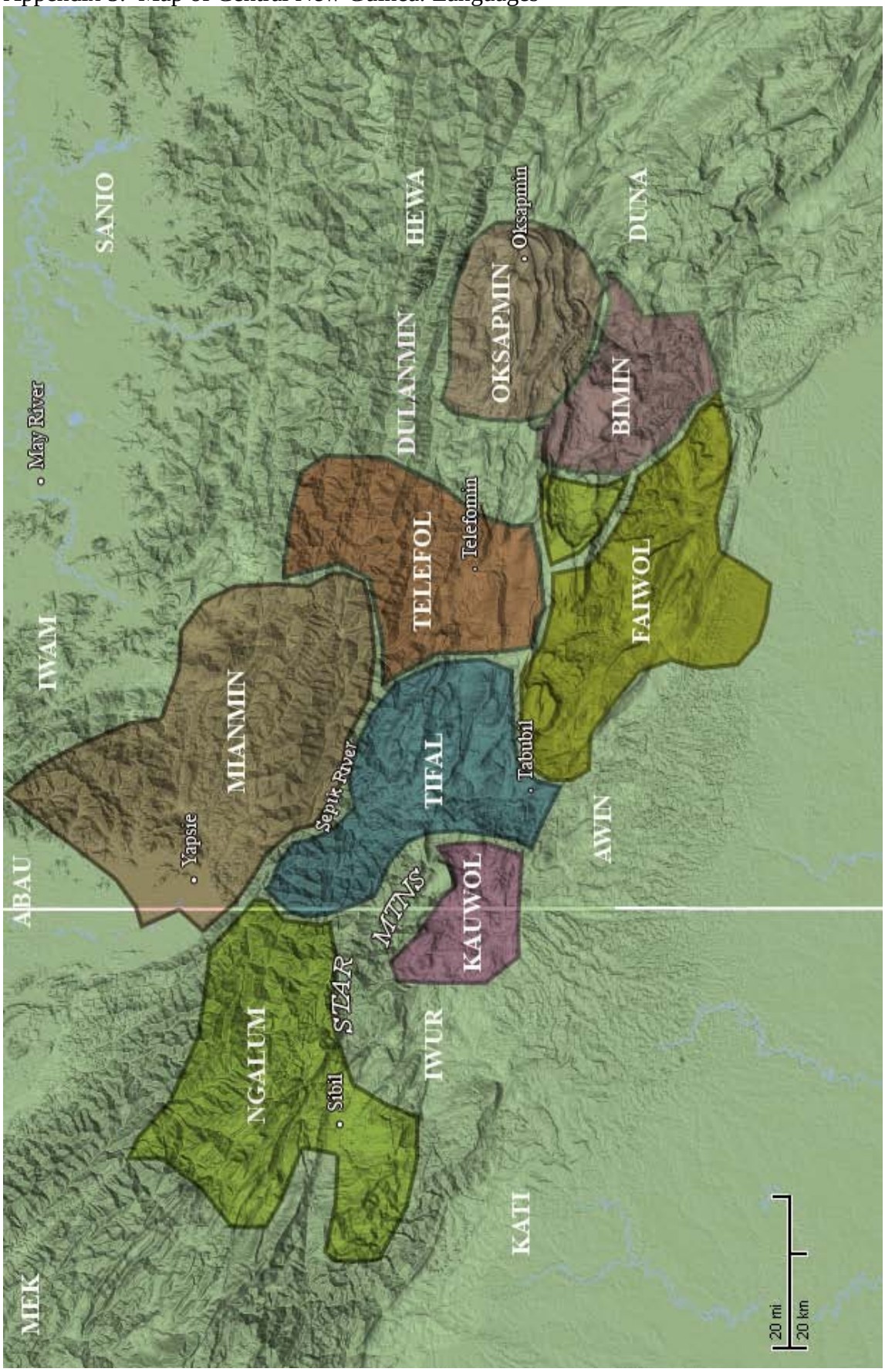


Appendix 4. Map of Upper Sepik: Languages



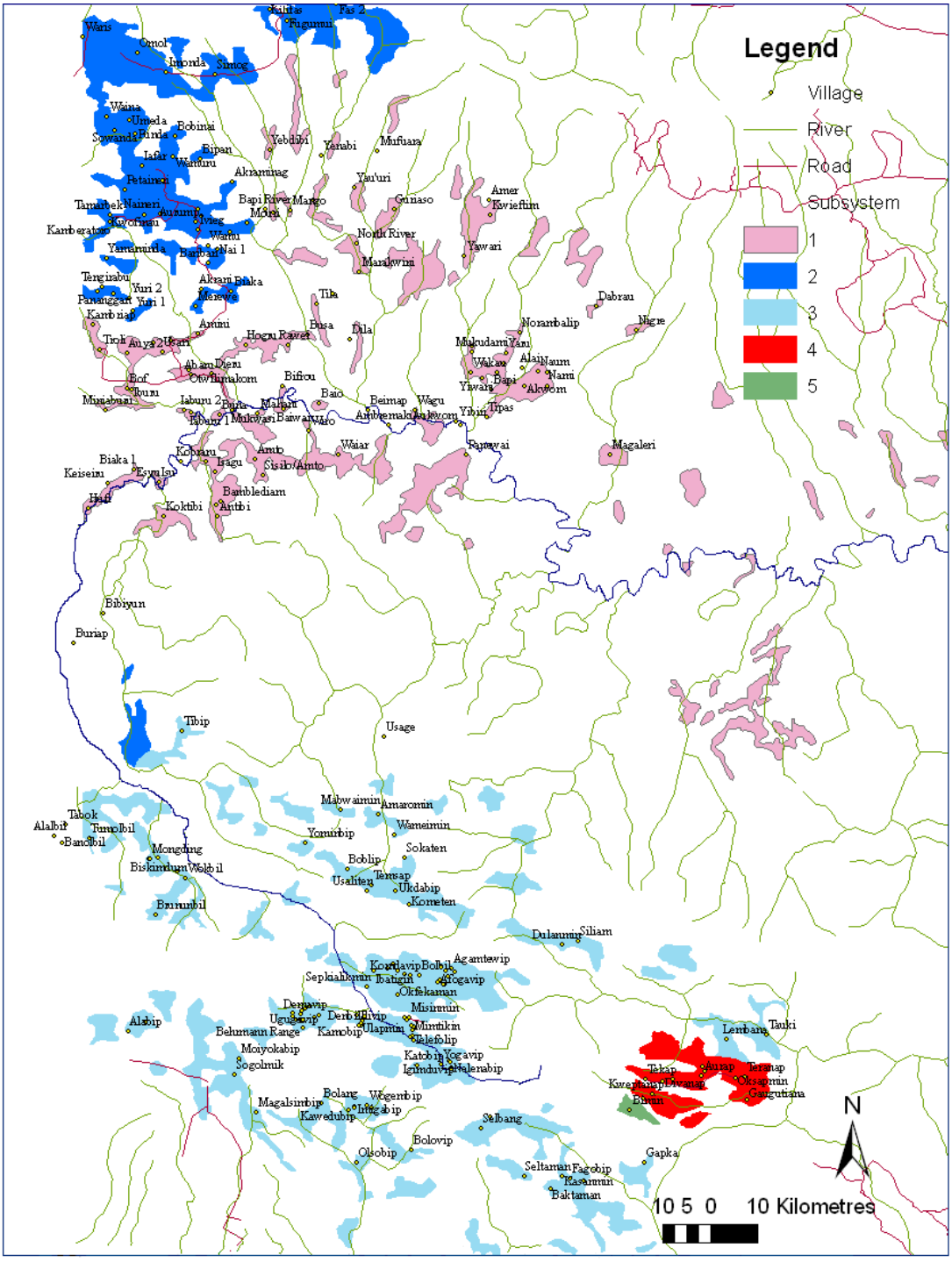
← North

Appendix 5. Map of Central New Guinea: Languages



← North

Appendix 6. Map of USCNG study area: Subsistence Systems and collection points (settlements).*



*Where collection points (settlements) are tightly clustered some names are omitted
Note: Sepik marked in blue.

Appendix 7a. Geography *Photos by Barry Craig*

View from the Star Mountains in Central New Guinea north across the Upper Sepik Basin to the Bewani Mountains.

View of the Sepik River looking south from the Sepik Plain to the West Range. The Abau village of Bifrou can be seen at the bend.

Appendix 7b. Geography

Canoe on the lower reaches of the August River.

Banks of the Yellow River.

Appendix 7c. Geography

Grasslands near Yellow River Station.

View across the Border Mountains.

Appendix 7d. Geography

View of the slope of the northern slopes of the Star Mountains.

View across the Ilam Valley looking east towards the Ifitamin Valley.

Appendix 7e. Geography

View of the southern slopes of the Star Mountains.

Appendix 8a. Subsistence *Photos by Barry Craig*

Lowland garden, with fence, near Green River: banana, yam and taro evident in the mix.

Sago palm.

Appendix 8b. Subsistence

Nagatman women making sago by pouring hot water into the sago pith and stirring with sticks (Tila).*

*Term in brackets indicate settlement name.

Appendix 8c. Subsistence

Abau children catching small fish and tadpoles in The Idam River area.

Appendix 8d. Subsistence

Fenced young taro garden in Central New Guinea (near Telefomin).

Developed taro garden in Central New Guinea (near Telefomin).

Appendix 8e. Subsistence

Urapmin man (Telefol) with red Pandanus.

Women with nut pandanus at Oksapmin.

Telefolmin men slaughtering a pig (Telefolip).

Telefolmin men butchering pig (Angkevip).

Appendix 9a. Settlement patterns *Photos by Barry Craig*

Abau communal house on banks of Sepik.

Abau communal house on the banks of the Sepik (near confluence with Green River). Note the long stilts that protect the house from flooding.

Appendix 9b. Settlement patterns

Settlement on the plains, note the small family houses, a feature introduced by administration officers (Hogru).

Large Namie family house (Norambalip).

Appendix 9c. Settlement patterns

Yuri village nestled on a ridge in the Border Mountains (Yuri#1).

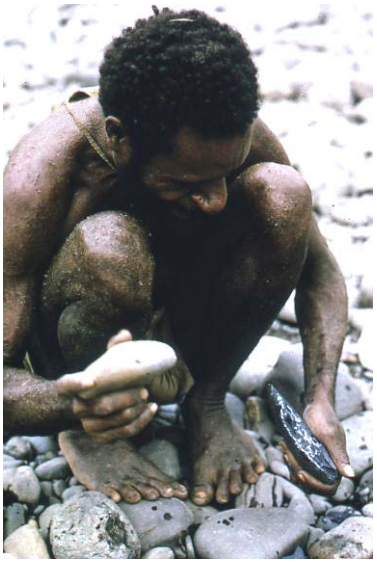
A large Telefolmin village (Telefolip).

Appendix 9d. Settlement Patterns

Cult house at Telefolip.

Appendix 10. Adzes *Photos by Barry Craig*

Telefolmin man hafting *fubi* adze at Ankevip.



Abau man making adze at Bibiyun, August River.

Appendix 11. Women's skirts *Photos by Barry Craig*

Top Right: Wopkeimin (Tifal speakers) women wearing short sedge skirts and bark cloth cape;
Top Left: Yuri woman wearing twisted sago leaf fibre skirt;
Bottom: Oksapmin women wearing long sedge skirts.

Appendix 12. Phallocrypts *Photos by Barry Craig*

Abau man wearing small gourd phallocrypt.

Oksapmin man wearing long gourd phallocrypt.

Appendix 13. Smoking-tubes and lime-gourds

Abau man using composite smoking apparatus composed of gourd and bamboo tube. *Photo by Barry Craig*

Anggor man using short broad smoking tube variety. *Photo by Barry Craig*

Lime-gourd and bone dispenser (Kamberap, Vien. 177184 a, b).* *Photo by Andrew Fyfe*

* Abbreviation and number given in brackets after settlement attribution indicate museum and museum ID number.

Appendix 14a. Musical instruments

Amanab.handdrum designs (hand drums traded into Punda from Iafar where handdrum making was a specialty. *Photo by Barry Craig*

Waina.man holding hand drum (Umeda). *Photo by Barry Craig*

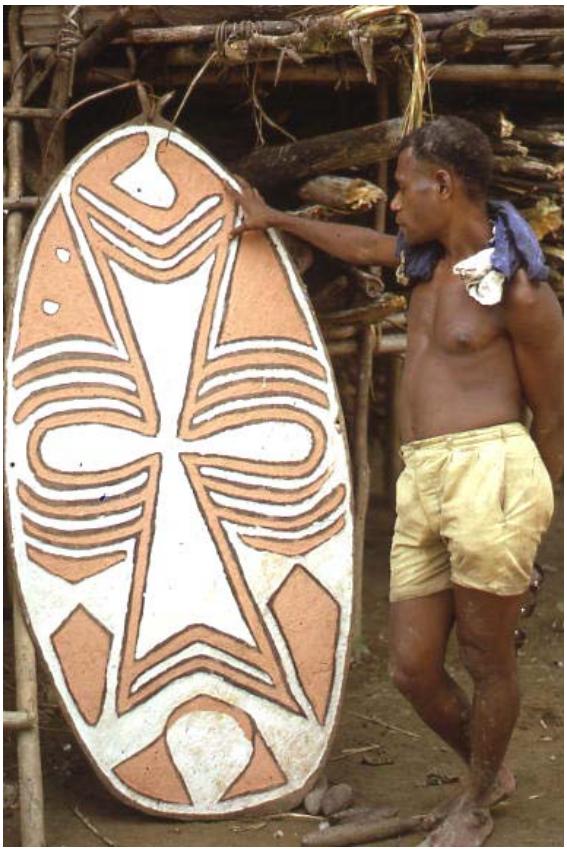
A typical Mountain Ok hand drum (Darabdawip, Bas. Vb 23189). *Photo by AndrewFyfe*

Appendix 14b. Musical instruments *Photos by Barry Craig*

Abau man playing jaw harp (Antibi).

Abau man playing trumpet (Green River).

Appendix 15a. Shields *Photos by Barry Craig*



Abau man with shield (Isagu).

Telefolmin men demonstrating use of shield (Telefomin).

Appendix 15b. Shields *Photos by Andrew Fyfe*




Top: Mianmin shield (Sokaten, PM E4707).
Bottom: Faiwolmin shield (Golgulbip, PM 79.1.22).

Appendix 15c. Shields *Photos by Andrew Fyfe*

Top: Namie shield (Nami, Berl. VI 50000); Bottom: Abau shield (Selelian, PM 79.1.117). Note the different handle devices: the highland handles are strung vertically, their shields held out at front in defensive mode; lowland ones are strung horizontally and are slung on shoulder in defensive mode.

Appendix 16. Cuirasses *Photos by Andrew Fyfe*

An Anggor cuirass from the Border Mountains (Wamu, PM E5936).

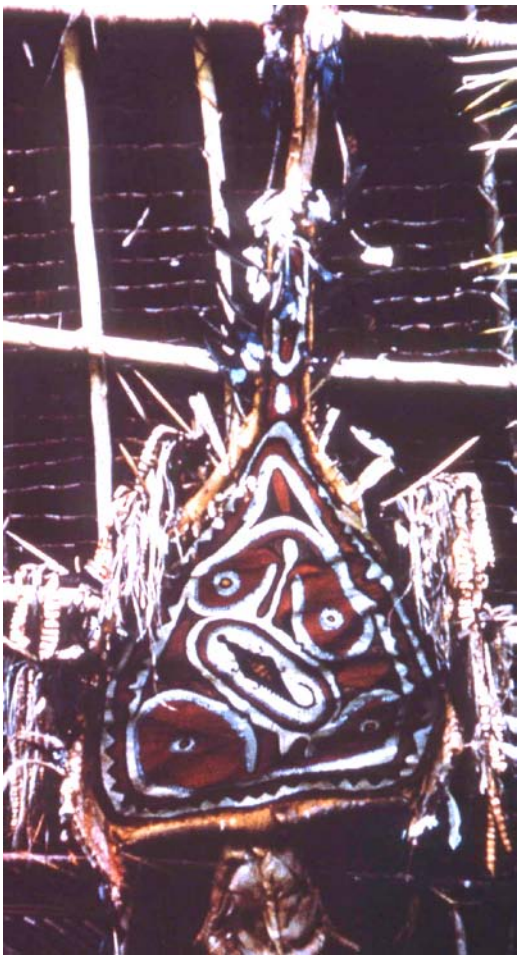
A Bimin cuirass from Central New Guinea (Bimin, PM E11154).

Appendix 17. Houseboards *Photos by Barry Craig*


Left and Right: Telefolmin houseboards.

Houseboards on Tifalmin cult house at Brolemavip.

Appendix 18a. Masks and other ritual paraphernalia



Large Kwomtari ritual mask (Baiberi). *Photo by M. J. Lewis*

Kwomtari sago spathe ritual plaques (Baiberi). *Photo by M. J. Lewis*

Appendix 18b. Masks and other ritual paraphernalia

Amanab sago-spathe plaque. *Photo by Barry Craig*

Appendix 18 c. Masks and other ritual paraphernalia

Mask for use in Namie therapeutic ritual (Yaru). *Photo by Barry Craig*

Appendix 18d. Masks and other ritual paraphernalia

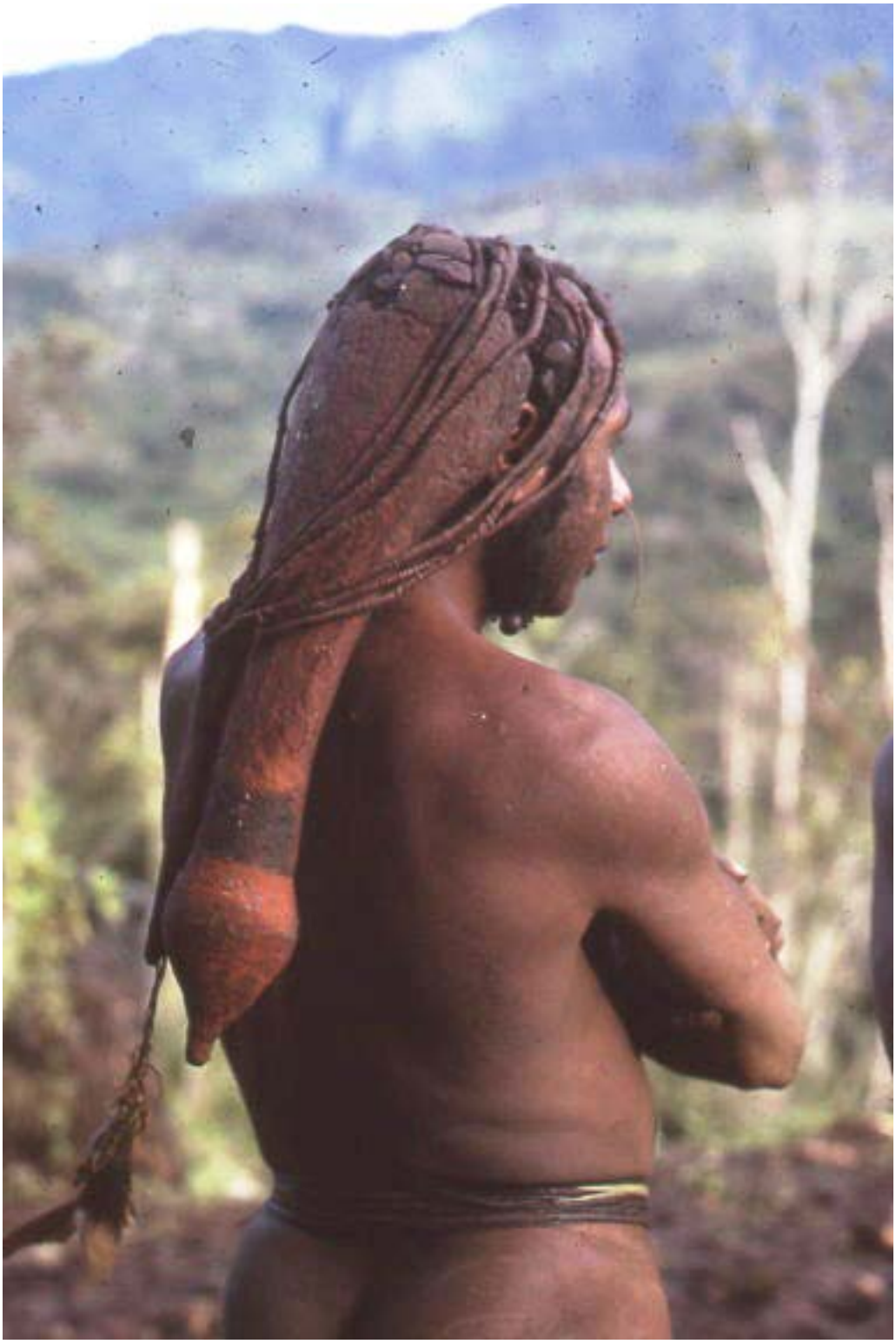
Abau man wearing ceremonial phallocrypt and bone belt (Idam River area). *Photo by Barry Craig*

Appendix 18e. Masks and other ritual paraphernalia

Telefolmin first grade (*Dagasal Ban*) initiates (Telefomin). *Photo by Barry Craig*

Telefolmin fifth grade (*Ot Ban*) initiates (Telefolip). *Photo by Barry Craig*

Appendix 18f. Masks and other ritual paraphernalia



Kauwol *Mafum Ban* (third grade in the Telefolmin area) initiate wearing the *Mafum* pigtail (Kauwolabip). *Photo by Barry Craig*

Appendix 19a. Designs on small portable objects *Photos from this point by Andrew Fyfe unless otherwise stated*

Amanab broad smoking tube (Ivieg, PM E14059).

Yuri smoking tube (Kamberap, Vien. 148915).


Namie Smoking tube (Tipas, Bas. Vb 15150).

Anggor broad smoking tube (Baribari, Berl. VI 50239).

Appendix 19b. Designs on small portable objects (cont.)

Rollout of Abau smoking tube design (Basis, Berl. VI 50319).

Appendix 19c. Designs on small portable objects

Rollout of Telefolmin smoking tube design (Utemtekin, Bas. Vb 23130).

Appendix 19d. Designs on small portable objects

Rollout of Abau phallocrypt (Antibi, Berl. VI 49816).

Appendix 19e. Designs on small portable objects

Rollout of Abau limegourd (Buna, Berl. VI 49779).

Appendix 20a. String bags*

Tifalmin bag: 34 (height) x 100 (max width) cm (Bimiine, PM 84.85.4).

Telefolmin bag: 35 x 75 cm (Plantevip, Bas. Vb 23055).

*Bags measurements are given so that the reader has a better idea as to possible function.

Appendix 20b. String bags

Abau bag: 48 x 68 cm (Bamblediam, PM 79.1.319).

Namie bag: 41 x 60 cm (Yiwani, Bas. Vb 26406).

Abau bag: 43 x 41 cm (Hogru, Berl. VI 49929).

Appendix 20c. String bags

Bimin bag: 40 x 38 cm (Bimin, PM E11180).

Wopkeimin (Tifal) bag: 38 x 32 cm (Moiyokabip, QUM 20018).

Appendix 20d. String bags

Telefolmin bag: 38 x 35 cm (Plantevip, Bas. Vb 26826).

Yuri bag: 23 x 10.5 cm (Kamberap, Vien. 177892).

Appendix 20e. String bags

Oksapmin bag: diam. 3 cm (Betiana, PM E2415.1).

Baktamanmin (Faiwol) bag: 5 x 3.5 cm (Baktaman, Berg. Barth 35b).

Baktamanmin (Faiwol) bag: 9 x 3 cm (each section) (Baktaman, Berg. Barth 35a).

Appendix 20f. String bags

Faiwolmin feather bag, bag: 22 x 24 cm (Olsobip, PM 62239).

Namie pig tail bag, bag: 20 x 17 cm (Norambalip, Berl. 50687).

Appendix 20g. String bags

Yuri bag with string tassels, bag: 16 x 10 cm (Fongwinam, Bas. Vb 26853).

Awun bag with conus shells, bag: 8 x 4.5 cm (Abrau, Berl. 50807).

Appendix 20h. String bags

Namie bag with Coix seeds, bag: 6 x 9 cm (Tipas, Bas. Vb 15851).

Appendix 20i. String bags

Yuri bag: 35 x 38 cm (Fongwinam, Berl. VI 49887).

Abau bag: 41 x 68 cm (Esyu, Berl. VI 49837).

Appendix 20j. String bags

Abau bag: 52 x 44 (Bisiaburu, AM E64305).


Yuri bag: 43 x 46 cm (Fongwinan, PM 2652).


Busa bag: 25 x 21 (Rawei, PM E7485).

Appendix 20k. String bags

Namie bag: 50 x 48 cm (Yegelapi, AM 64595).

Appendix 20l. String bags

Amto woman using legs to create tension.
Photo by Barry Craig

Telefolmin unfinished mouthband using LPG 1 with spacing (Bas. Vb 23060).

Telefolmin unfinished string bag with spacing (Bas. Vb 23060).

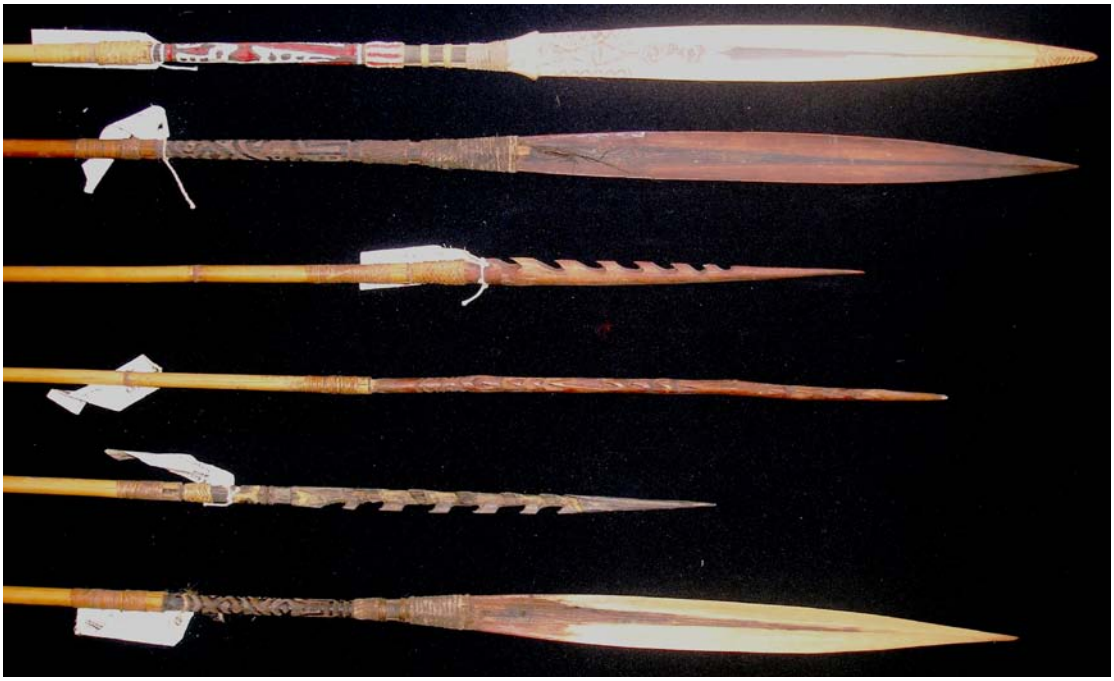
Appendix 21a. Arrows

A selection of Namie arrows (b to t Bas. Vb 26436-440).

A selection of Yuri arrows (t to b Vien.149.006-010).

Appendix 21b. Arrows

A selection of Abau arrows (t to b Berl.VI 50017-20).



A selection of Telefolmin arrows (t to b AM 61586- 91).

Appendix 21c. Arrows

A pair of Tifalmin pronged arrows (Moiyokabip, t to b QUM 20072, 52).

A Bimin percussive arrow (Bimin, BM 1982.Oc.6.75).

Appendix 21d. Arrows: designs

Rollout of Abau arrow design on BBA foreshaft (Hogru, Leid. 4477-122).

Rollout of Yuri arrow design on BBA foreshaft (Kamberap, Vien. 149005).

Appendix 21e. Arrows: designs

Rollout of Telefolmin arrow design on BBA foreshaft (Plantewip, Bas. Vb 23237).

Appendix 21f. Arrows: designs

Rollout of Mianmin arrow design on Plano-convex PWHA head (Morr. no field number but recorded as being from Timelmin); note the pigment on Knot 2 in BIND-C position.

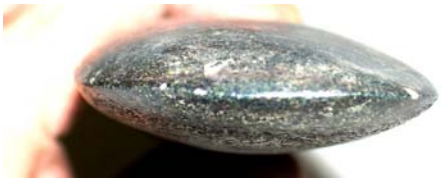
'Shaft streak' on Abau arrow (Hogru, Berl. VI 50014).

Appendix 22 a. Trade

Tifalmin tobacco bundle (Namindumavip, PM E4456).

A *mok* adze traded (unhafted) into the Telefolmin area from the upper Leonhard Schultze (Wario) River (Plantewip, Bas. Vb 23175).

A *fubi* adze traded (unhafted) into the Telefolmin area from the upper Brazza River in the Central Highlands of West Papua (Indonesia) (Ibmindangawip, Bas.Vb 23171).



Cross-section of Bas.Vb 23175.

Cross-section of Bas.Vb 23171.

Appendix 22b. Trade

Profiles of an example of the most widely traded adze variety in the Border Mountains Area, called *hon maar* by Amanab speakers (Iafar, PM E14044).

Appendix 22c. Trade

Cowrie shell band traded into the Namie area from the western Torricelli Mountains (Naum, Berl. VI 50112).

Cowrie shell band traded into the Nagatman area from the western Torricelli Mountains (Nagitman, Berl. VI 49961).

Nassa shell headband trade into Central New Guinea (Tifalmin) from the west (Oksivip, BM1964.Oc.3.292).

Appendix 22d. Trade

Dogs' teeth necklace sourced by the Tifalmin from the Wopkeimin to the south (Broselavip, BM 1964.Oc.3.286).

Appendix 23. Functional/operational classes (FOC) determined for the sample

Category	FOC	Sub class
01. WARFARE AND HUNTING		
	01 Shield	
	02 Cuirass	
	03 Fighting pick	
	04 Spear/lance	
	05 Dagger	
	06 Club	
	07 Bow	
	08 Bow string guard	
	09 Single tipped arrow	
		01 Bamboo blade
		02 Palmwood head
		03 Bone tipped
	10 Multi-tipped arrow	
		01 Bamboo
		02 Palmwood
	11 Bolt arrow	
		01 Sapling root
		02 Stone
		03 Bone
02. FISHING		
	01 Fish trap	
	02 Fish net/scoop	
	03 Fish basket	
	04 Fishing line/hook	
03. DOMESTICATED ANIMAL RESTRAINERS		
	01 Pig-training tether	
	02 Pig muzzle	
	03 Dog tether	
	04 Dog muzzle	
	05 Dog ‘rattle’	

04. GARDENING

01 Adze
02 Hand/small adze
03 Garden spikes
04 Digging stick
05 Climbing hoop

05. DOMESTIC/ FOOD PROCESSING

01 Food/water container
02 Cooking/smoking grate
03 Basket
04 Domestic bag
05 Sago cutter
06 Sago pounder
07 Sago processing clamp
08 Sago sieve
09 Sago stirring stirrer
10 Taro scraper
11 Pandanus dish/platter
12 Fruit knife/splitter
13 Butchering/cutting knife
14 Gouger
15 Fire/food tongs
16 Fire stones
17 Fire making apparatus
18 Lamp/torch
19 Hook
20 Broom
21 Fly trap
22 Mosquito/fly whisk
23 Headrest
24 Cup
28 Spoon
29 Drinking tube

06. TOOLS

01 Engraver
02 Needles
03 Scraper/chisel
04 Awl
05 Hammerstone/grinding stone
06 File/sandpaper
07 Cutter/small saw
08 Drill
09 Weaving frame
10 Pigment container

07. PERSONAL

01 Lime container
02 Lime spatula
03 Smoking tube
04 Tobacco bundle
05 Comb

08. BAGS

01 Amulet bags
02 Personal/Pocket bags
03 Male adorned net bag
04 Domestic

09. HEALING AND MAGIC

01 Hunting charm
02 Gardening charm
03 Healing charm/curative
05 Gathering charm
06 Other charm

10. CULT

01 Animal relics
02 Ancestral relics
03 sculpture/painting
04 Stone

11. TOYS

01 Child's arrow
02 Noise maker
03 Hoop
04 Top
05 Twisting toy

12. DECORATED (ARCHITECTURAL ETC) OBJECTS

01 House board

13. CLOTHING AND BODY ADORNMENT (Everyday/ritual)

01 Mask
02 Headdress/Head orn.
03 String cap
04 Male initiation pigtail
05 Hair band
06 Forehead decoration/band
07 Ear ornament
08 Nose ornament
09 Necklace/neck ornament
10 Chest ornament/pendant
11 Chest/shoulder/straps/bands
12 Armbands/wristbands
13 Waistbands/hip ornaments
14 Cape/hood
15 Women’s skirt
16 Lower Back ornament
17 Phallocrypt
18 Leg bands

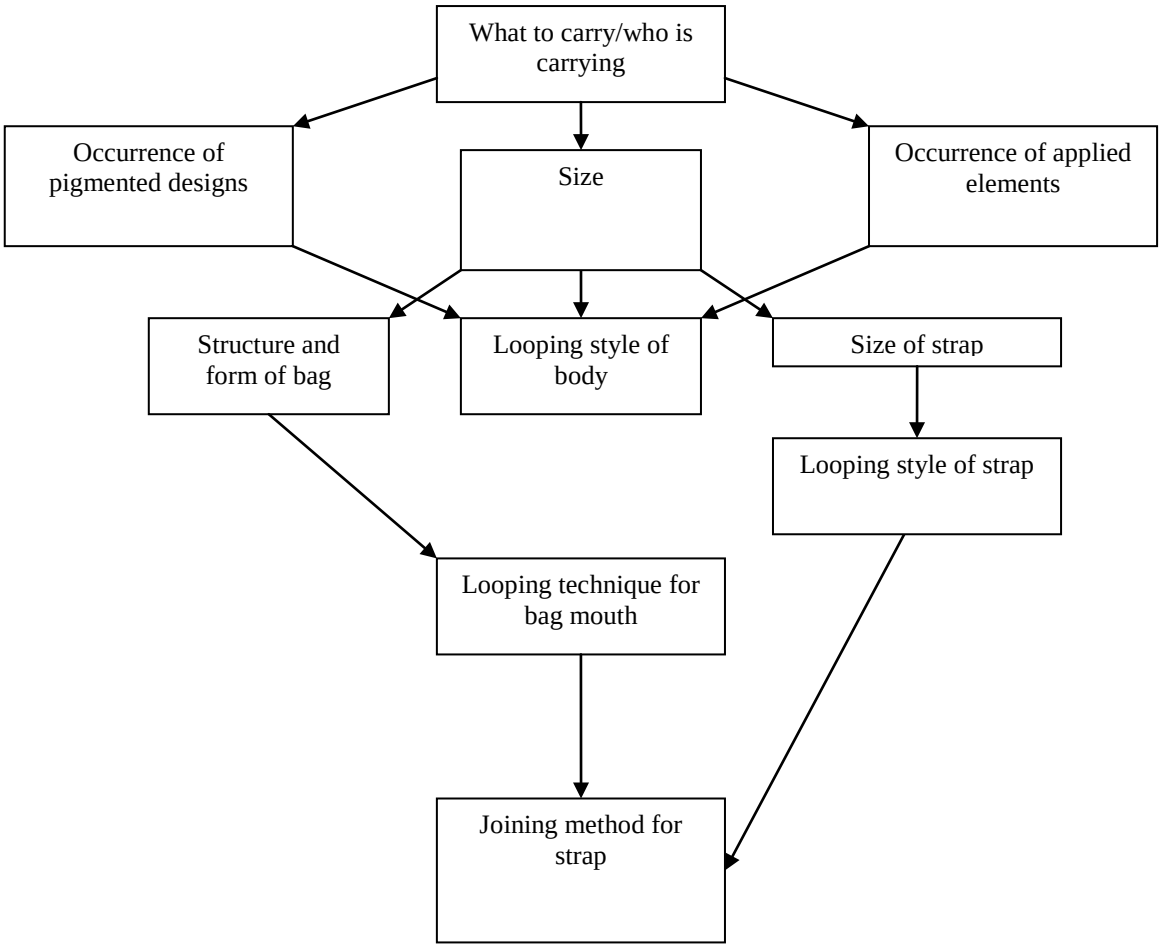
14. MUSICAL

01 Hand drum
02 Dance rattle
03 Musical bow
04 Jew’s harp
05 Flute
06 Trumpet

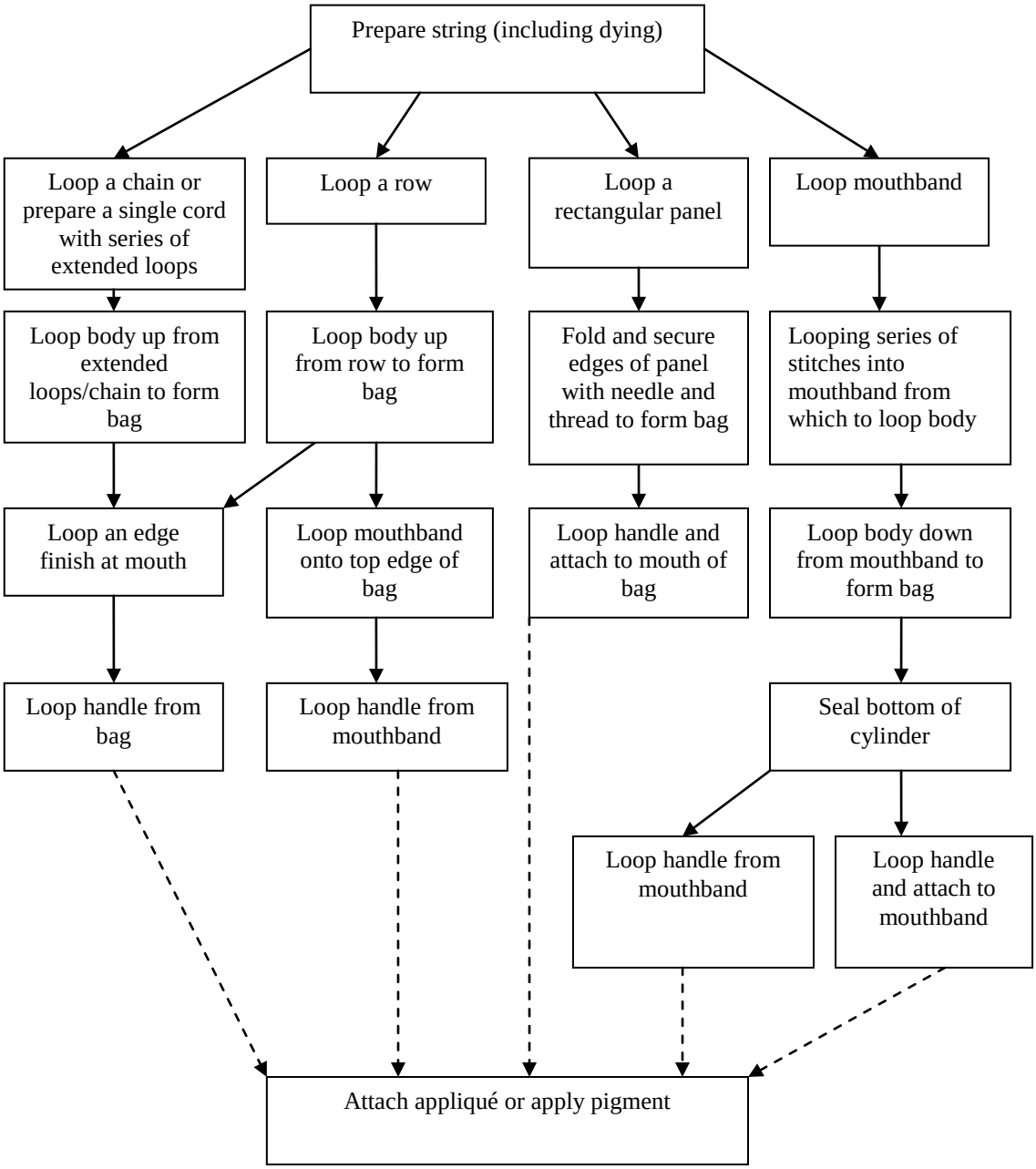
15. MISCELLANEOUS

01 Day counter
02 Paddle
03 Calling pipe
04 Slit drum ornament
05 Wrapping/pouch
06 Decorated
07 Shell ring currency
08 Walking/fighting stick

Appendix 24a. Decision step sequence: string bag design

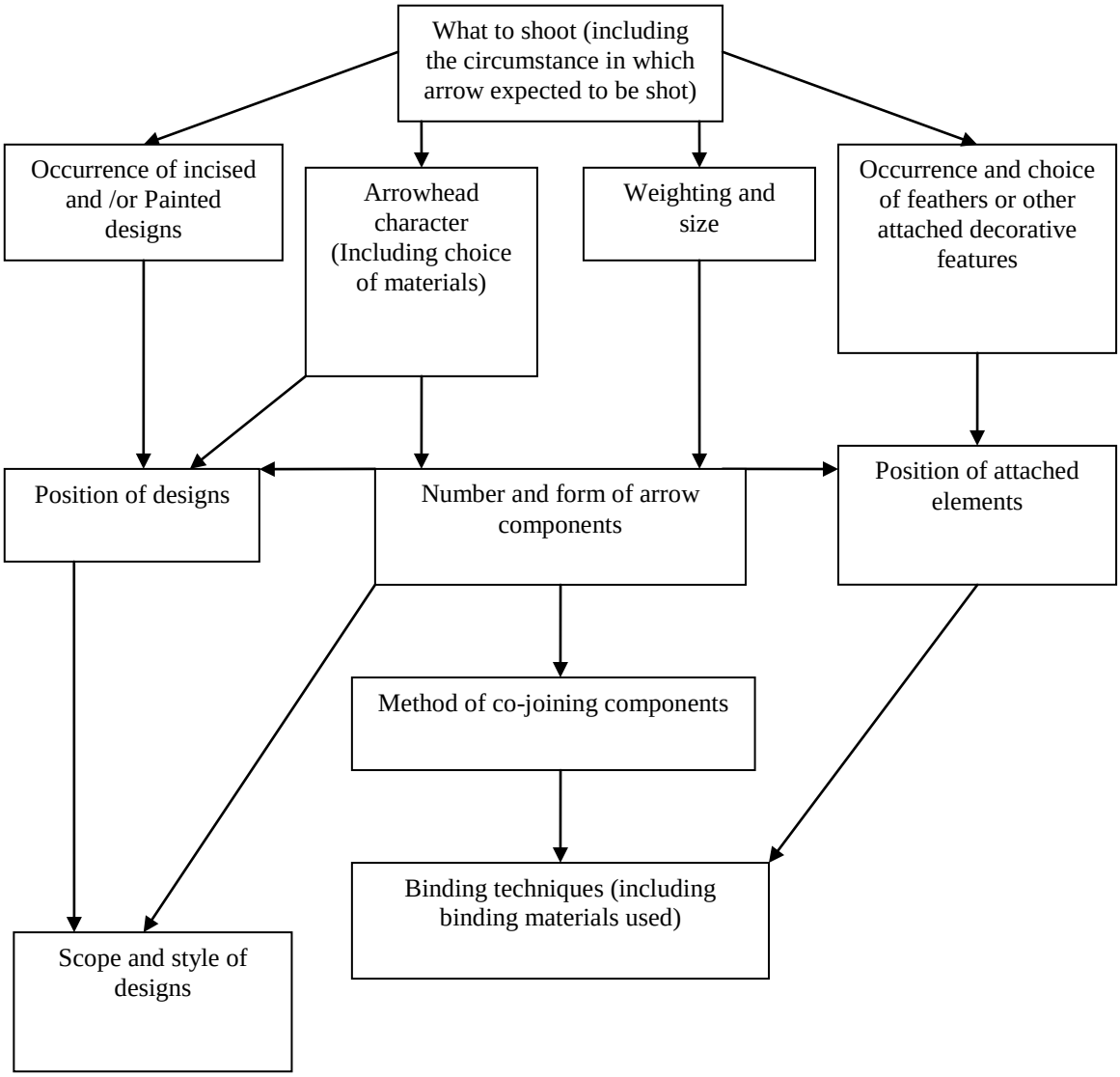


Appendix 24b. Production step sequences: string bags*

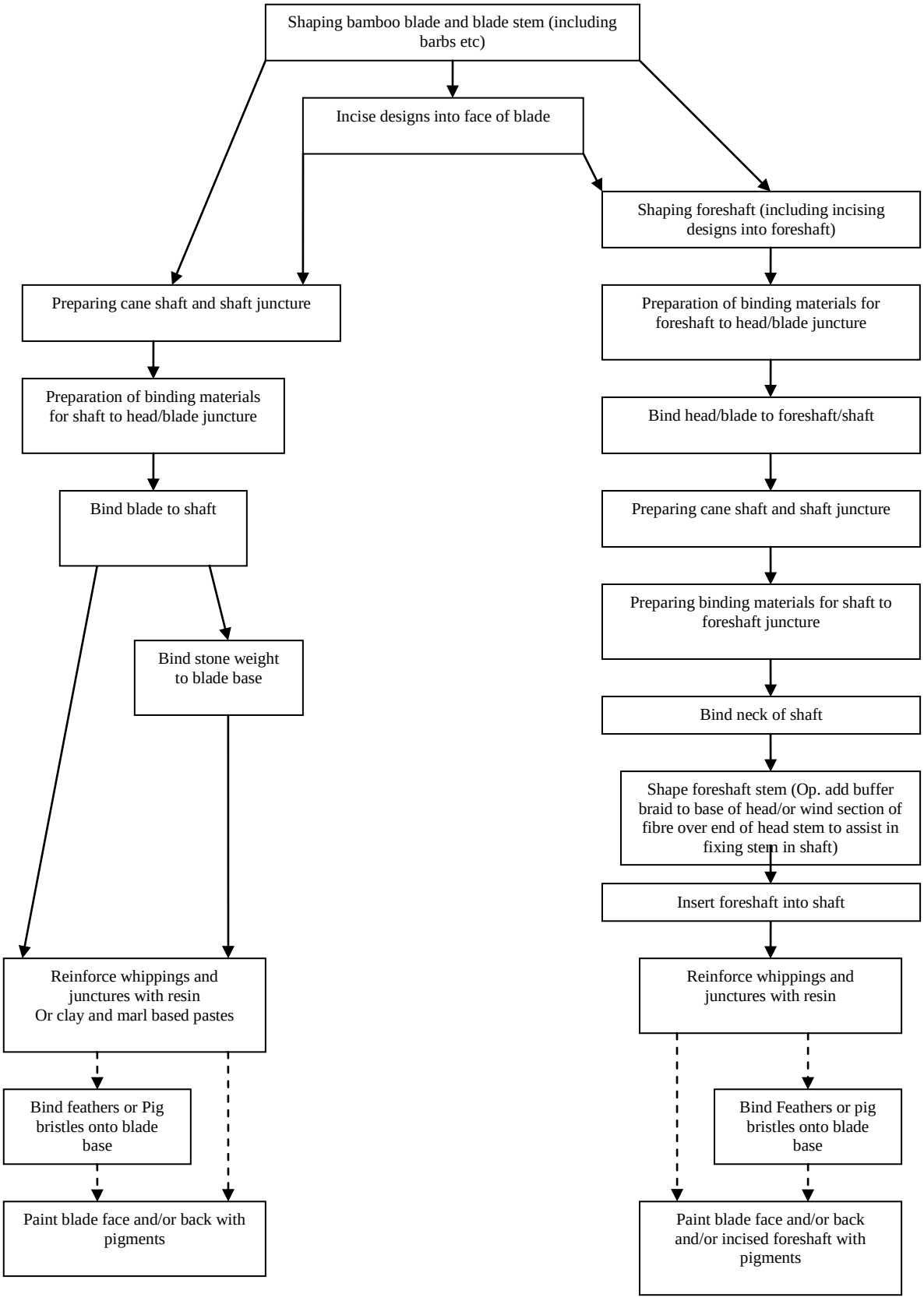


* Dashed line indicate optional rather than alternative choice.

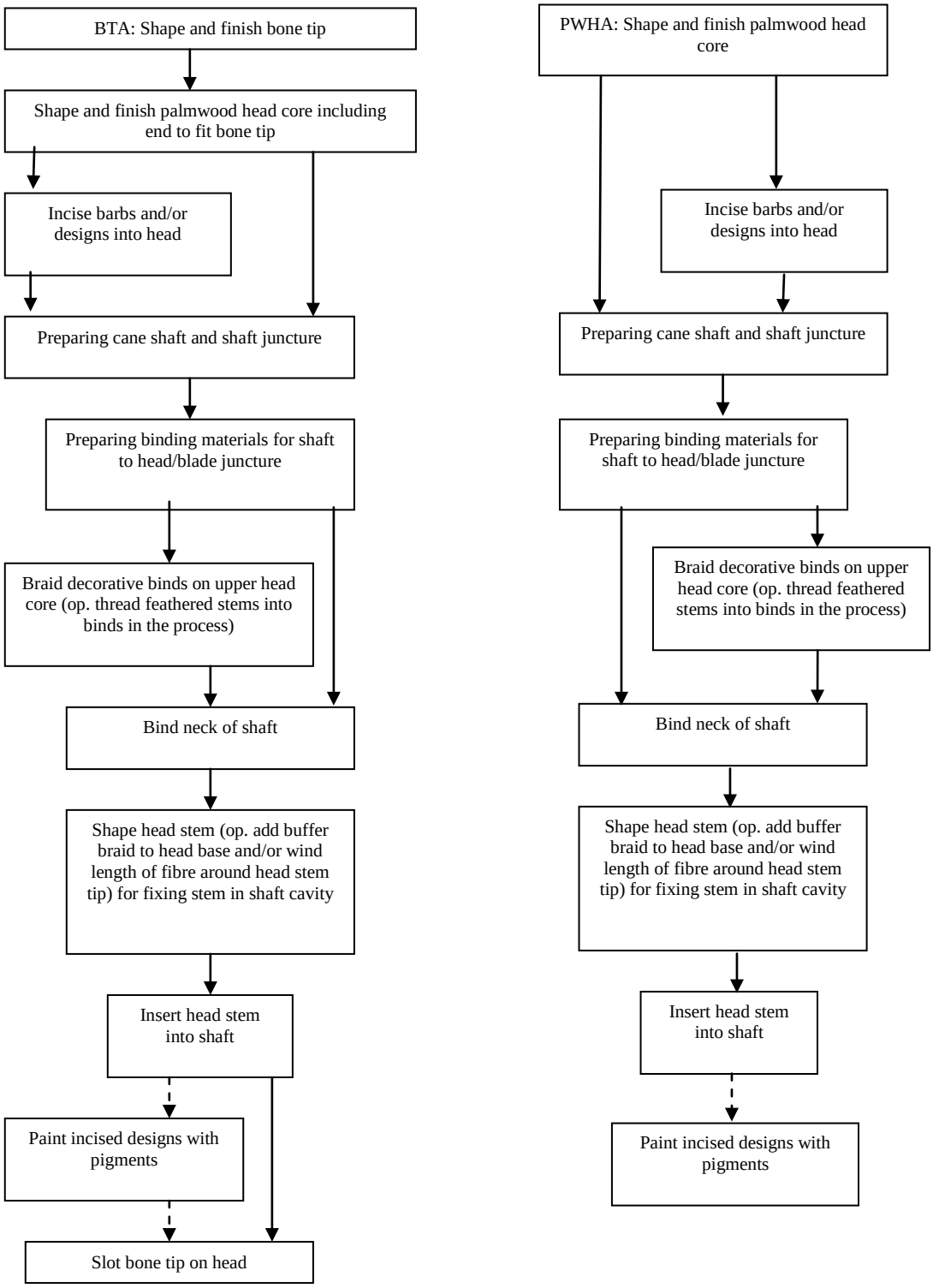
Appendix 24c. Decision step sequence: arrow design



Appendix 24d. Production step sequence: bamboo blade arrows (BBAs)



Appendix 24e. Production step sequence: bone tip (BTAs) and palmwood head (PWHAs) arrows

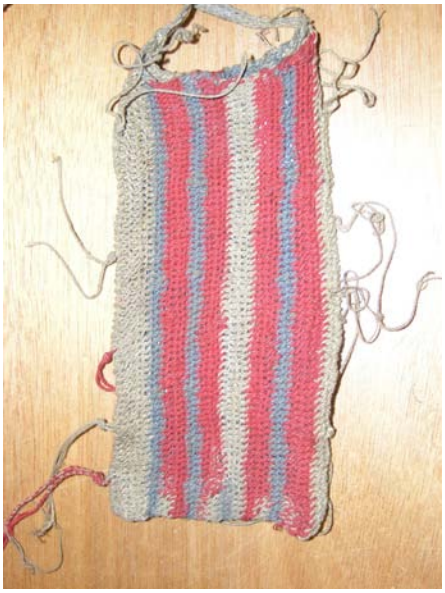


Appendix 25a. String bag attribute levels and attribute states: SB-B-STRCT

STRCT 1 (29 x 52 cm, Afogavip, Bas Vb 23056).

STRCT 2 (39 x 59 cm, Bimin, PM E11149).

STRCT 3 (19 x 4 cm, Betiana, PM E2411.5).

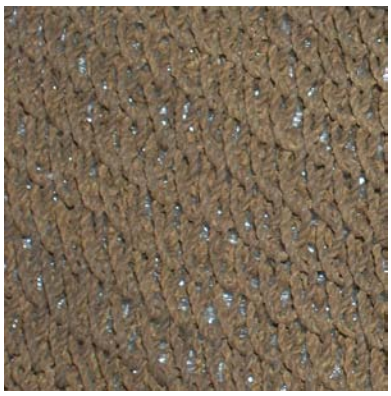


STRCT 4 (15 x 7.5 cm, Pananggan, AM 3947-17).

Appendix 25b. String bag attribute levels and attribute states: SB-D-BDLPG

LPG 1 (Moiyokabip, QUM 20015).

LPG 2 (Yegelapi, AM 88873).



LPG 3 (Yiwani, Bas. Vb 26405).

LPG 4 (Bimin, PM E11149).

Appendix. 25c. String bag attribute levels and attribute states: SB-E-MTHFN

LPG 1 (Afogavip, Bas. Vb 23052).

LPG 5 E5 (Blemtalavip, BM 1964.Oc.3.227).

LPG 6 (Awungkaman, Bas. Vb 23050).

LPG 7 (Dabrau, Berl. VI 50697).

LPG 8 (Moiyokabip, QUM 20015).

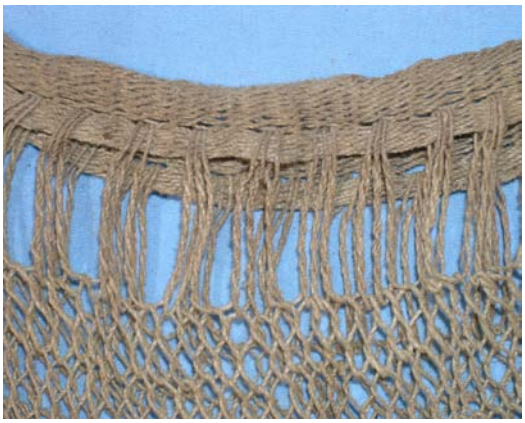
LPG 9 (Bimin, PM E11149).

Appendix 25d. String bag attribute levels and attribute states: SB-F-MTHBDATT


MTHBDATT 1 (Bamblediam, PM 79.1.319).


MTHBDATT 2 (Moiyokabip, QUM 20017).


MTHBDATT 3 (Kometen, Morr. NFN 1).


MTHBDATT 4 (Moiyokabip, QUM 20022).


MTHBDATT 5 (Usage, Bas. Vb 26248).

Appendix 25e. String bag attribute levels and attribute states: SB-G-STRPLPG

LPG 1 (Kweptanap, BM 1982.Oc.6.93).

LPG 6 (Namindumavip, BM 1964.Oc.3.307).

LPG 7 (Namindumavip, BM 1964.Oc.3. 226).

LPG 8 (Tipas, Bas. Vb 15850).

PBF (Naum, AM E64599).

Appendix 25f. String bag attribute levels and attribute states: SB-G-STRPLPG

LPG 1 (Kweptanap, BM 1982.Oc.6.93).

LPG 6 (Namindumavip, BM 1964.Oc.3.307).

LPG 7 (Namindumavip, BM 1964.Oc.3. 226).

LPG 8 (Tipas, Bas. Vb 15850).

PBF (Naum, AM E64599).

Appendix 25g. String bag attribute levels and attribute states: SB-H-STRPATT

STRPATT 1 (Kambriap, Vien. 148887).

STRPATT 2 (Tipas, Bas. Vb 15846).

STRPATT 3 (Rawei, Leid. 4477-320).

STRPATT 4 (Moiyokabip, QUM 20020).

STRPATT 5 (Tipas, Bas. 15844).

STRPATT 6 (Bimin, PM E11182).

STRPATT 7 (Magleri, AM 88865).

Appendix 26a. Arrow attribute levels and attribute states: BBA-C-BCS

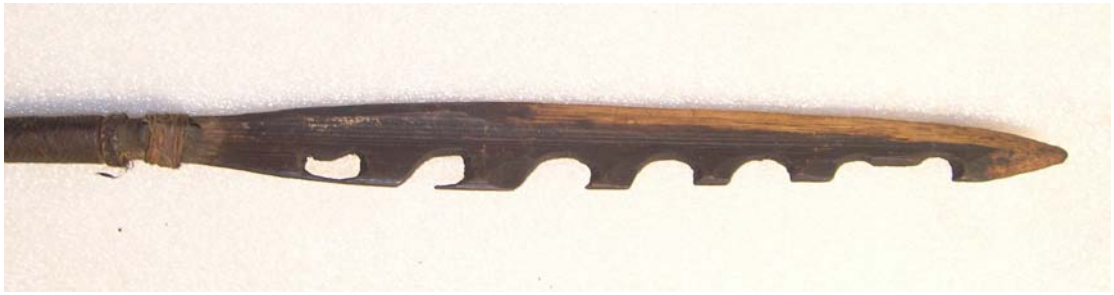
BBA-C-BCS 1 (Umeda, Berl VI 50073).

BBA-C-BCS 2 (Hogru, Berlin VI 50024).

BBA-C-BCS 3 (Afogavip, Bas. Vb 23239).

Appendices 26b. Arrow attribute levels and attribute states: BBA-D-BMOD

BBA-D-BMOD 1 (Afogavip, Bas. Vb 23239).



BBA-D-BMOD 2 (Plantewip, Bas. Vb 23273).

BBA-D-BMOD 3 (Hogru, Leiden 4477-120).

BBA-D-BMOD 4 (Urapmin, BM 1964.Oc.3. 73).

BBA-D-BMOD 5 (Tipas, SAM 43581).

Appendix 26c. Arrow attribute levels and attribute states: PWHA-D-MOD

PWHA-D-HMOD 1 (Bibiyun, Rott. 60932).

PWHA-D-HMOD 2 (Hogru, Berl. VI 50010).

PWHA-D-HMOD 3 (Buna, AM E64342-2).

PWHA-D-HMOD 4 (Punda, Berl. VI 50100).

PWHA-D-HMOD 5 (Tipas, Basel Vb 19442).

PWHA-D-HMOD 6 (Betiana, PM E2190.1).

Appendix 26d. Arrow attribute levels and attribute states: BTA-C-HMOD

BTA-C-HMOD 1 (Iburu, Berl. VI 49758).

BTA-C-HMOD 4 (Hufi, Rott. 60922).

BTA-C-HMOD 5 (Samanai, AM 64361-1).

BTA-C-HMOD 6 (Wagu, PM E11599).

Appendix 26e. Arrow attribute levels and attribute states: BBA-E-STRCT

BBA-E-STRCT 1 (Nai#2, Leid. 4477-201).

BBA-E-STRCT 2 (Hogru, Leiden 4477-120).

BBA-E-STRCT 3 (Temseten, PM E4129).

BBA-E-STRCT 4 (Nai#2, Leid. 4477-200).

Appendix 26f. Arrow attribute levels and attribute states: BBA-F-BATT

BBA-F-BATT 1 (Hogru, Leid. 4477-135).

BBA-F-BATT 2 (Betiana, Arnold Perey private collection #30).

Appendix 27a. Binding attribute levels and attribute states: whippings

WHIP 1 (Samanai, Berl. VI 49759).

WHIP 2 (Kwieftim, Berl. VI 50641).

WHIP 3 (Iafar, PM E14048-2).

WHIP 4 (Abrau, Berl. VI 50617).

WHIP 5 (Plantewip, Bas. Vb 23266).

Appendix 27b. Binding attribute levels and attribute states: braids


BRAID 1 (Demavip, BM 1964.Oc.3.140).


BRAID 2 (Afogavip, Bas. Vb 23279).


BRAID 3 (Kasanmin, BM 1982.Oc.6.82).


BRAID 4 (Bamblediam, Berl. VI 49803).


BRAID 5 (Betiana, PM E2190.4).

Appendix. 27c. Binding attribute levels and attribute states: recreated BRAID 1 and 2

Rollout of recreated BRAID 1.

Rollout of recreated BRAID 2.

Appendix. 27d. Binding attribute levels and attribute states: recreated BRAID 4

Recreated three over/three under BRAID 4.

Recreated two over/two under BRAID 4. *Photo by Jill Bolton*

Appendix 27e. Binding attribute levels and attribute states: knots


KNOT 1 (Tipas, Bas. Vb 19420).


KNOT 2 (Plantewip, Bas. Vb 23301).

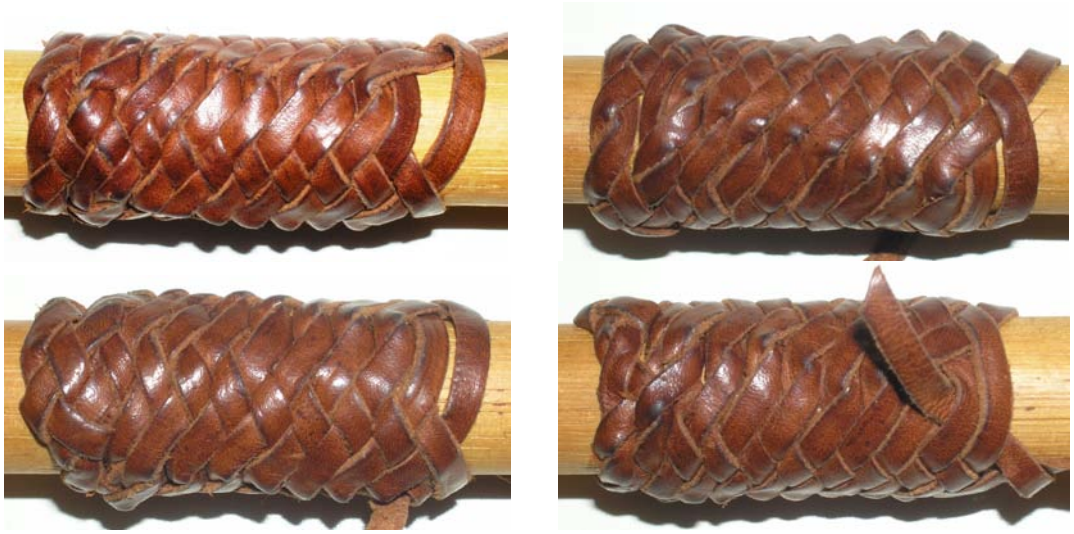

Rollout of recreated Knot 1. Note the twist from which the strands then pass under two then over one before they turn back.


Photo of recreated Knot 2. Note the twist from which the strands pass under one then over one before they turn back. *Photo by Jill Bolton*

Appendix 27f. Binding attribute levels and attribute states: looped bands*

Looped band on Telefolmin BBA (Plantewip,Vb 23237).

Looped band on Tifalmin BBA (Asegavip, BM 1964 Oc.3.156).

Looped band on Abau BBA (Hogru, Berl. VI 50022).

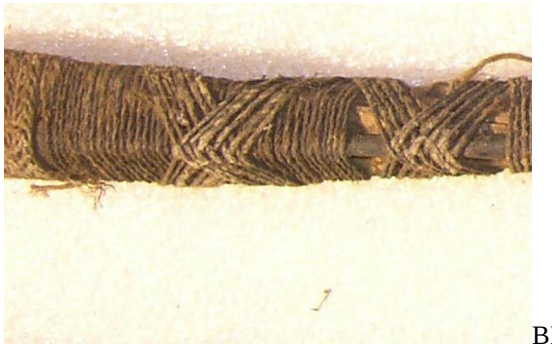
* Note the common use of LPG 7.

Appendix 27g. Binding attribute levels and attribute states: bind positions

BIND-A (Afogavip, Bas. Vb 23292).

BIND-B (Afogavip, Bas. Vb 23279).

BIND-C (Plantewip, Bas. Vb 23243).



BIND-D (Plantewip, Bas. Vb 23266).

BIND-E (Hogru, Berl. VI 50022).

Appendix 28a. String bag correspondence analysis tables: SB-C-STRCT

Correspondence Table

	STRCT				
LANGUAGE	STRCT 1	STRCT 2	STRCT 3	STRCT 4	Active Margin
ABAU	45	0	6	2	53
BIMIN	11	11	25	0	47
FAIW	5	10	9	0	24
MIAN	1	2	9	0	12
NAMIE	51	0	0	0	51
OKSAP	0	33	34	0	67
TELEF	27	5	15	0	47
TIFAL	33	1	17	0	51
YURI	28	2	0	15	45
Active Margin	201	64	115	17	397

Summary

					Proportion of Inertia		Confidence Singular Value	
								Correlation
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	2
1	.761	.580			.677	.677	.024	.112
2	.480	.230			.269	.947	.063	
3	.214	.046			.053	1.000		
Total		.856	339.788	.000[a]	1.000	1.000		

a. 24 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.134	-.654	.268	.067	.099	.042	.853	.143	.997
BIMIN	.118	.614	.039	.050	.077	.001	.887	.004	.890
FAIW	.060	.744	-.109	.039	.058	.003	.853	.018	.872
MIAN	.030	.842	.036	.034	.037	.000	.629	.001	.630
NAMIE	.128	-.818	.491	.125	.148	.134	.686	.247	.933
OKSAP	.169	1.139	-.241	.235	.378	.043	.930	.042	.972
TELEF	.118	-.034	.258	.009	.000	.034	.015	.904	.919
TIFAL	.128	-.200	.350	.027	.009	.068	.187	.575	.763
YURI	.113	-.999	-1.171	.269	.195	.675	.421	.578	.999
Active Total	1.000			.856	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
STRCT	Mass	1	2	Inertia	1	2	1	2	Total
DFMOC	.506	-.818	.491	.226	.339	.122	.869	.125	.993
UFCOC	.161	1.377	-.628	.213	.306	.064	.831	.069	.899
UFR	.290	.908	.134	.161	.239	.005	.860	.007	.867
LPFS	.043	-1.653	-4.347	.256	.117	.809	.265	.729	.994
Active Total	1.000			.856	1.000	1.000			

a. Row Principal normalization

Appendix 28b. String bag correspondence analysis tables: SB-D-BDLPG

Correspondence Table

	BDLPG				
LANGUAGE	LPG 1	LPG 2	LPG 3	LPG 4	Active Margin
ABAU	44	2	7	0	53
BIMIN	25	0	0	22	47
FAIW	9	0	0	15	24
MIAN	11	0	0	1	12
NAMIE	30	11	3	7	51
OKSAP	34	0	0	33	67
TELEF	43	0	0	4	47
TIFAL	50	0	0	1	51
YURI	43	0	0	2	45
Active Margin	289	13	10	85	397

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.550	.302			.574	.574	.039	.086
2	.416	.173			.328	.902	.054	
3	.227	.051			.098	1.000		
Total		.526	208.942	.000[a]	1.000	1.000		

a. 24 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.134	-.645	-.076	.091	.184	.004	.609	.008	.617
BIMIN	.118	.641	-.014	.049	.161	.000	.996	.000	.997
FAIW	.060	.990	-.162	.062	.196	.009	.963	.026	.989
MIAN	.030	-.216	.350	.006	.005	.021	.250	.657	.907
NAMIE	.128	-.428	-.940	.144	.078	.657	.164	.788	.951
OKSAP	.169	.695	-.037	.082	.270	.001	.993	.003	.995
TELEF	.118	-.212	.349	.022	.018	.083	.245	.662	.907
TIFAL	.128	-.358	.411	.041	.055	.125	.398	.523	.921
YURI	.113	-.303	.387	.030	.034	.098	.348	.569	.916
Active Total	1.000			.526	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
BDLPG	Mass	1	2	Inertia	1	2	1	2	Total
LPG 1	.728	-.402	.429	.060	.117	.134	.594	.388	.982
LPG 2	.033	-1.528	-4.669	.156	.076	.714	.148	.793	.942
LPG 3	.025	-1.919	-1.940	.085	.093	.095	.330	.193	.523
LPG 4	.214	1.825	-.517	.226	.713	.057	.953	.044	.996
Active Total	1.000			.526	1.000	1.000			

a. Row Principal normalization

Appendix 28c. String bag correspondence analysis tables: SB-E-MTHFN

Correspondence Table

	MTHFN						
LANGUAGE	LPG1	LPG 5	LPG 6	LPG 7	LPG 8	LPG 9	Active Margin
ABAU	37	0	0	9	1	0	47
BIMIN	2	0	0	0	13	32	47
FAIW	1	0	0	0	15	5	21
MIAN	5	0	0	0	5	2	12
NAMIE	7	0	0	44	0	0	51
OKSAP	0	0	0	0	32	8	40
TELEF	22	0	2	0	17	6	47
TIFAL	29	1	0	0	13	4	47
YURI	27	0	0	0	0	0	27
Active Margin	130	1	2	53	96	57	339

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.878	.771			.521	.521	.017	.792
2	.693	.480			.324	.845	.035	
3	.424	.179			.121	.966		
4	.190	.036			.024	.990		
5	.120	.014			.010	1.000		
Total		1.481	502.140	.000[a]	1.000	1.000		

a. 40 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.139	-.526	.736	.118	.050	.157	.325	.636	.961
BIMIN	.139	.866	-.746	.282	.135	.161	.369	.274	.643
FAIW	.062	.795	-.517	.071	.051	.035	.552	.234	.786
MIAN	.035	.414	.146	.008	.008	.002	.743	.092	.835
NAMIE	.150	-1.780	-.799	.573	.618	.200	.832	.167	.999
OKSAP	.118	.837	-.579	.177	.107	.082	.468	.224	.692
TELEF	.139	.341	.300	.061	.021	.026	.267	.205	.472
TIFAL	.139	.189	.562	.064	.006	.091	.078	.688	.766
YURI	.080	-.196	1.221	.128	.004	.247	.024	.927	.951
Active Total	1.000			1.481	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
MTHFN	Mass	1	2	Inertia	1	2	1	2	Total
LPG1	.383	-.196	1.221	.290	.015	.572	.039	.948	.987
LPG 5	.003	.245	1.171	.018	.000	.004	.007	.106	.113
LPG 6	.006	.443	.624	.037	.001	.002	.024	.030	.054
LPG 7	.156	-2.032	-1.120	.592	.646	.196	.841	.159	1.000
LPG 8	.283	.808	-.480	.256	.185	.065	.556	.122	.679
LPG 9	.168	.956	-.977	.288	.154	.161	.411	.268	.678
Active Total	1.000			1.481	1.000	1.000			

a. Row Principal normalization

Appendix 28d. String bag correspondence analysis tables: SB-F-MTHBDATT

Correspondence Table

	MTHBDATT					
LANGUAGE	ATT 1	ATT 2	ATT 3	ATT 4	ATT 5	Active Margin
ABAU	21	12	9	0	0	42
BIMIN	0	0	1	0	1	2
FAIW	0	0	0	1	0	1
MIAN	0	0	1	0	4	5
NAMIE	13	8	25	4	0	50
TELEF	3	8	8	5	0	24
TIFAL	0	11	4	16	1	32
YURI	6	5	17	0	0	28
Active Margin	43	44	65	26	6	184

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.784	.615			.561	.561	.118	.092
2	.607	.368			.336	.897	.056	
3	.316	.100			.091	.987		
4	.117	.014			.013	1.000		
Total		1.096	201.649	.000[a]	1.000	1.000		

a. 32 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.228	-.263	.465	.124	.026	.134	.128	.400	.528
BIMIN	.011	2.656	.416	.080	.125	.005	.957	.024	.980
FAIW	.005	-.035	-2.214	.033	.000	.072	.000	.806	.807
MIAN	.027	4.309	.384	.509	.821	.011	.991	.008	.999
NAMIE	.272	-.180	.244	.041	.014	.044	.218	.398	.616
TELEF	.130	-.159	-.301	.020	.005	.032	.166	.593	.758
TIFAL	.174	.062	-1.152	.233	.001	.627	.003	.993	.995
YURI	.152	-.176	.423	.057	.008	.074	.083	.479	.562
Active Total	1.000			1.096	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
MTHBDATT	Mass	1	2	Inertia	1	2	1	2	Total
ATT 1	.234	-.356	.921	.128	.030	.198	.142	.571	.713
ATT 2	.239	-.224	-.336	.035	.012	.027	.213	.286	.499
ATT 3	.353	-.098	.470	.087	.003	.078	.024	.330	.355
ATT 4	.141	-.035	-2.214	.257	.000	.692	.000	.991	.991
ATT 5	.033	5.411	.363	.589	.955	.004	.996	.003	.999
Active Total	1.000			1.096	1.000	1.000			

a. Row Principal normalization

Appendix 28e. String bag correspondence analysis tables: SB-G-STRPLPG

Correspondence Table

	STRPLPG					
LANGUAGE	LPG 1	LPG 6	LPG 7	LPG 8	PBF	Active Margin
ABAU	47	0	5	1	1	54
BIMIN	38	0	9	0	0	47
FAIW	11	0	13	0	0	24
MIAN	8	2	2	0	0	12
NAMIE	37	0	5	3	5	50
OKSAP	33	1	33	0	0	67
TELEF	32	9	6	0	0	47
TIFAL	45	2	4	0	0	51
YURI	40	0	3	0	0	43
Active Margin	291	14	80	4	6	395

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.434	.188			.464	.464	.049	.147
2	.377	.142			.351	.815	.049	
3	.274	.075			.185	.999		
4	.019	.000			.001	1.000		
Total		.406	160.217	.000[a]	1.000	1.000		

a. 32 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.137	-.285	.136	.017	.059	.018	.639	.146	.785
BIMIN	.119	.020	.065	.008	.000	.003	.006	.061	.067
FAIW	.061	.819	.243	.045	.216	.025	.913	.080	.994
MIAN	.030	.007	-.673	.016	.000	.097	.000	.864	.864
NAMIE	.127	-.534	.549	.102	.192	.268	.354	.374	.727
OKSAP	.170	.711	.153	.090	.455	.028	.947	.044	.990
TELEF	.119	-.075	-.801	.089	.004	.536	.008	.861	.869
TIFAL	.129	-.227	-.163	.017	.035	.024	.396	.205	.601
YURI	.109	-.257	.003	.022	.038	.000	.334	.000	.334
Active Total	1.000			.406	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
STRPLPG	Mass	1	2	Inertia	1	2	1	2	Total
LPG 1	.737	-.417	-.033	.034	.128	.001	.703	.003	.706
LPG 6	.035	-.155	-4.382	.118	.001	.681	.001	.819	.821
LPG 7	.203	1.864	.476	.143	.704	.046	.929	.046	.975
LPG 8	.010	-2.507	3.135	.040	.064	.100	.303	.358	.661
PBF	.015	-2.617	3.377	.071	.104	.173	.275	.346	.621
Active Total	1.000			.406	1.000	1.000			

a. Row Principal normalization

Appendix 28f. String bag correspondence analysis tables: SB-H-STRPATT

Correspondence Table

	STRPATT							
LANGUAGE	ATT 1	ATT 2	ATT 3	ATT 4	ATT 5	ATT 6	ATT 7	Active Margin
ABAU	3	16	2	11	10	9	2	53
BIMIN	0	0	0	2	0	45	0	47
FAIW	0	0	0	1	0	23	0	24
MIAN	0	1	0	5	0	6	0	12
NAMIE	4	39	3	0	3	1	0	50
OKSAP	0	0	0	0	0	67	0	67
TELEF	0	0	0	24	0	23	0	47
TIFAL	3	1	1	29	0	17	0	51
YURI	9	14	16	3	2	0	0	44
Active Margin	19	71	22	75	15	191	2	395

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.883	.779			.556	.556	.017	.228
2	.564	.318			.227	.783	.039	
3	.455	.207			.147	.930		
4	.309	.095			.068	.998		
5	.047	.002			.002	1.000		
6	.003	.000			.000	1.000		
Total		1.401	553.498	.000[a]	1.000	1.000		

a. 48 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.134	-.615	.187	.148	.065	.015	.343	.032	.375
BIMIN	.119	.815	-.487	.108	.101	.089	.733	.262	.995
FAIW	.061	.815	-.489	.055	.052	.046	.731	.263	.995
MIAN	.030	.407	.485	.014	.006	.022	.353	.500	.853
NAMIE	.127	-1.395	-.454	.339	.316	.082	.726	.077	.803
OKSAP	.170	.839	-.597	.181	.153	.190	.659	.334	.993
TELEF	.119	.547	.729	.103	.046	.199	.344	.611	.956
TIFAL	.129	.300	.939	.131	.015	.358	.089	.870	.959
YURI	.111	-1.309	-.013	.321	.245	.000	.594	.000	.594
Active Total	1.000			1.401	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
STRPATT	Mass	1	2	Inertia	1	2	1	2	Total
ATT 1	.048	-1.237	.239	.084	.074	.003	.684	.010	.694
ATT 2	.180	-1.480	-.596	.381	.394	.064	.805	.053	.859
ATT 3	.056	-1.521	-.037	.221	.129	.000	.454	.000	.454
ATT 4	.190	.267	1.999	.256	.014	.759	.041	.943	.984
ATT 5	.038	-1.109	.101	.106	.047	.000	.344	.001	.345
ATT 6	.484	.839	-.597	.321	.340	.172	.827	.171	.998
ATT 7	.005	-.790	.588	.033	.003	.002	.075	.017	.092
Active Total	1.000			1.401	1.000	1.000			

a. Row Principal normalization

Appendix 29a. String bag ANOVA tables and figures: boxplots for SB-HTMXW (n=305)

Fig.1 Boxplot for SB-HTMXW ratio variance according to language (n=305).

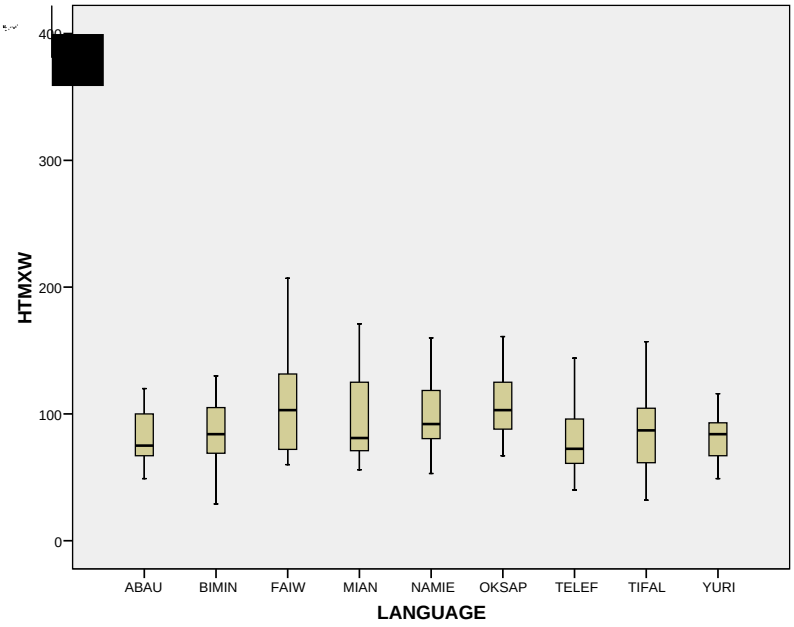
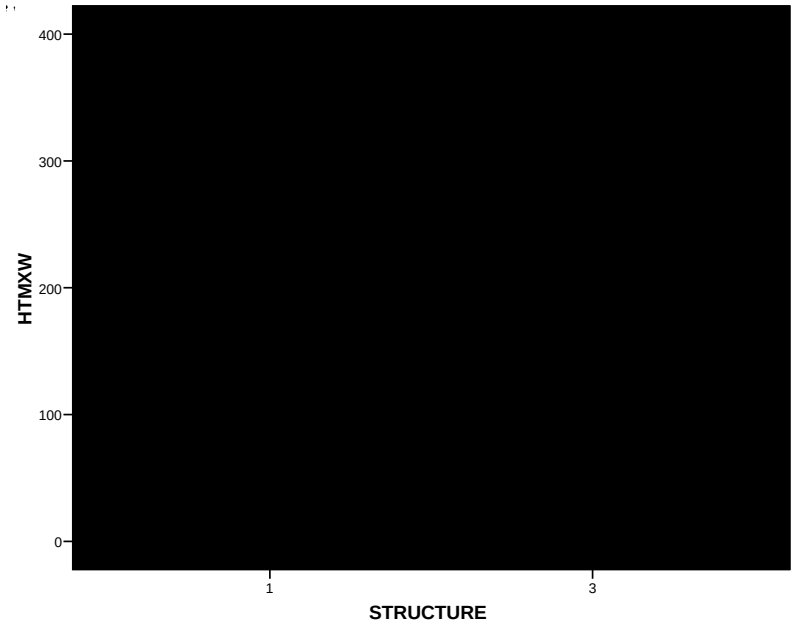


Fig.2. Boxplot for SB-HTMXW ratio variance according to structure (n=305).



Appendix 29b. String bag ANOVA tables and figures: SB-A-HTMXW descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HTMXW	284	100.0%	0	.0%	284	100.0%

Descriptives

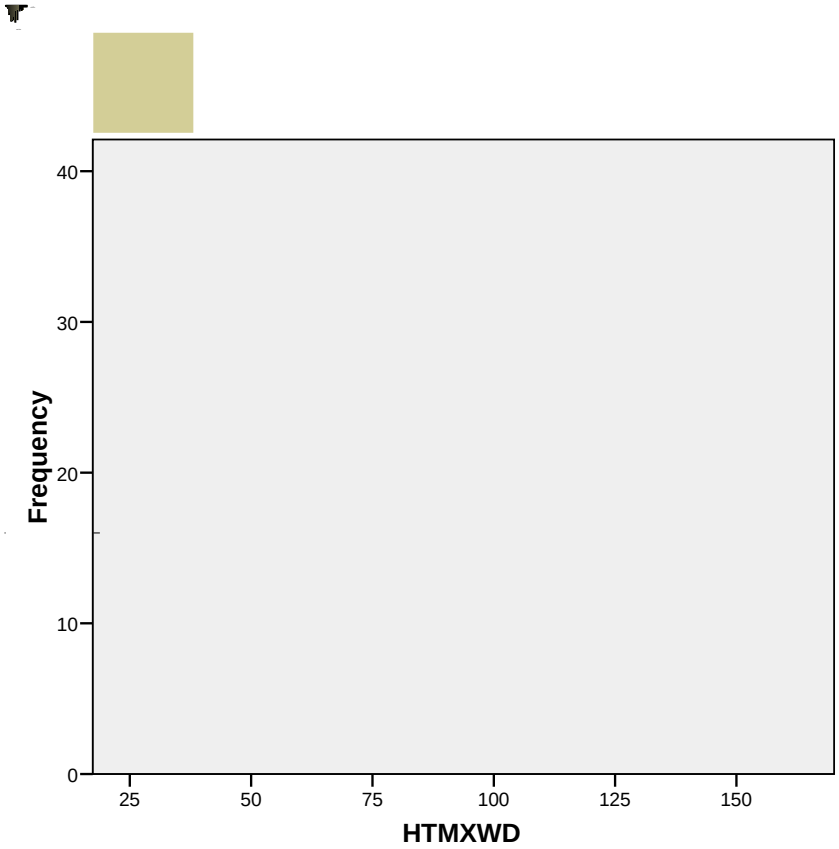
			Statistic	Std. Error
HTMXW	Mean		86.63	1.537
	95% Confidence Interval for Mean	Lower Bound	83.61	
		Upper Bound	89.66	
	5% Trimmed Mean		85.66	
	Median		83.00	
	Variance		670.890	
	Std. Deviation		25.902	
	Minimum		29	
	Maximum		161	
	Range		132	
	Interquartile Range		32	
	Skewness		.591	.145
	Kurtosis		.067	.288

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HTMXW	.072	284	.001	.972	284	.000

a Lilliefors Significance Correction

Appendix 29c. String bag ANOVA tables and figures: frequency histogram for SB-A-HTMXW (Final Sample n=284)



Appendix 29d. String bag ANOVA tables and figures: SB-B-MNTMXW descriptive statistics (Final Sample n=305)

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
MNTMXW	305	100.0%	0	.0%	305	100.0%

Descriptives

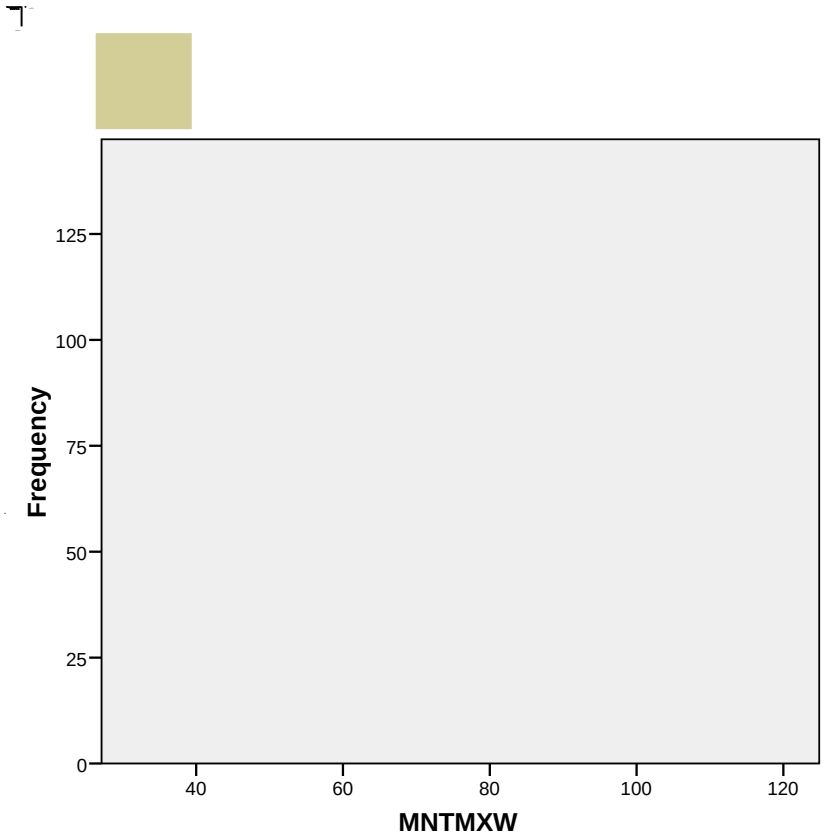
			Statistic	Std. Error
MNTMXW	Mean		83.94	1.005
	95% Confidence Interval for Mean	Lower Bound	81.97	
		Upper Bound	85.92	
	5% Trimmed Mean		84.96	
	Median		89.00	
	Variance		308.336	
	Std. Deviation		17.559	
	Minimum		32	
	Maximum		120	
	Range		88	
	Interquartile Range		32	
	Skewness		-.568	.140
	Kurtosis		-.963	.278

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
MNTMXW	.269	305	.000	.844	305	.000

a Lilliefors Significance Correction

Appendix 29e. String bag ANOVA tables and figures: frequency histogram for SB-B-MNTMXW (Final Sample n=305)



Appendix 29f. String bag ANOVA tables and figures: ANOVA for SB-A-HTMXW

Descriptives

HTMXW

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	44	78.50	17.148	2.585	73.29	83.71	49	120
BIMIN	30	81.87	22.402	4.090	73.50	90.23	29	130
FAIW	11	98.64	32.748	9.874	76.64	120.64	60	154
MIAN	8	75.13	13.716	4.849	63.66	86.59	56	100
NAMIE	49	96.82	25.328	3.618	89.54	104.09	53	160
OKSAP	32	104.59	24.398	4.313	95.80	113.39	67	161
TELEF	40	77.50	26.401	4.174	69.06	85.94	40	144
TIFAL	45	84.51	30.176	4.498	75.45	93.58	32	157
YURI	25	80.56	18.285	3.657	73.01	88.11	49	116
Total	284	86.63	25.902	1.537	83.61	89.66	29	161

Test of Homogeneity of Variances

HTMXW

Levene Statistic	df1	df2	Sig.
3.056	8	275	.003

ANOVA

HTMXW

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26101.558	8	3262.695	5.479	.000
Within Groups	163760.357	275	595.492		
Total	189861.915	283			

Robust Tests of Equality of Means

HTMXW

	Statistic(a)	df1	df2	Sig.
Welch	5.733	8	71.543	.000
Brown-Forsythe	5.625	8	133.966	.000

a Asymptotically F distributed.

Appendix 29g. String bag ANOVA tables and figures: ANOVA for SB-B-MNTMXW

Descriptives

MNTMXW

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	49	78.39	16.510	2.359	73.65	83.13	49	100
BIMIN	34	93.68	8.713	1.494	90.64	96.72	77	100
FAIW	12	93.33	12.093	3.491	85.65	101.02	71	100
MIAN	11	85.91	16.855	5.082	74.59	97.23	57	100
NAMIE	51	70.10	20.302	2.843	64.39	75.81	32	100
OKSAP	33	99.24	3.093	.538	98.15	100.34	85	100
TELEF	42	85.83	18.136	2.798	80.18	91.48	53	120
TIFAL	47	85.45	14.691	2.143	81.13	89.76	58	100
YURI	26	78.50	14.151	2.775	72.78	84.22	56	100
Total	305	83.94	17.559	1.005	81.97	85.92	32	120

Test of Homogeneity of Variances

MNTMXW

Levene Statistic	df1	df2	Sig.
17.700	8	296	.000

ANOVA

MNTMXW

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	24360.882	8	3045.110	12.993	.000
Within Groups	69373.170	296	234.369		
Total	93734.052	304			

Robust Tests of Equality of Means

MTMXW

	Statistic(a)	df1	df2	Sig.
Welch	30.439	8	80.162	.000
Brown-Forsythe	14.232	8	173.279	.000

a Asymptotically F distributed.

Appendix 29h. String bag ANOVA tables and figures: homogeneous subsets of languages with related means for SB-A-HTMXW ratios $\alpha = 0.1$.

Tukey HSD

	N	Subset for alpha = .01	
LANGUAGE	1	2	1
MIAN	8	75.13	
TELEF	40	77.50	
ABAU	44	78.50	78.50
YURI	25	80.56	80.56
BIMIN	30	81.87	81.87
TIFAL	45	84.51	84.51
NAMIE	49	96.82	96.82
FAIW	11	98.64	98.64
OKSAP	32		104.59
Sig.	.042	.014	

Means for groups in homogeneous subsets are displayed.
a Uses Harmonic Mean Sample Size = 21.906.
b The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Appendix 30a. Arrow correspondence analysis tables: arrow class

Correspondence Table

	SUBCLASS			
LANGUAGE	BBA	PWHA	BTA	Active Margin
ABAU	225	115	105	445
BIMIN	8	18	0	26
FAIW	6	28	0	34
MIAN	36	40	20	96
NAMIE	58	79	91	228
OKSAP	19	42	0	61
TELEF	75	95	0	170
TIFAL	48	103	0	151
YURI	74	64	40	178
Active Margin	549	584	256	1389

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.397	.158			.801	.801	.018	.148
2	.198	.039			.199	1.000	.026	
Total		.197	274.009	.000[a]	1.000	1.000		

a. 16 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.320	-.263	-.197	.035	.140	.315	.641	.359	1.000
BIMIN	.019	.606	.110	.007	.044	.006	.968	.032	1.000
FAIW	.024	.748	.363	.017	.087	.082	.809	.191	1.000
MIAN	.069	-.045	.047	.000	.001	.004	.476	.524	1.000
NAMIE	.164	-.444	.342	.051	.204	.488	.627	.373	1.000
OKSAP	.044	.602	.102	.016	.101	.012	.972	.028	1.000
TELEF	.122	.462	-.148	.029	.165	.069	.906	.094	1.000
TIFAL	.109	.595	.090	.039	.244	.022	.978	.022	1.000
YURI	.128	-.134	-.027	.002	.015	.002	.963	.037	1.000
Active Total	1.000			.197	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
SUBCLASS	Mass	1	2	Inertia	1	2	1	2	Total
BBA	.395	-.143	-1.229	.025	.008	.597	.052	.948	1.000
PWHA	.420	.939	.704	.067	.371	.209	.877	.123	1.000
BTA	.184	-1.835	1.028	.106	.621	.195	.928	.072	1.000
Active Total	1.000			.197	1.000	1.000			

a. Row Principal normalization

Appendix 30b. Arrow correspondence analysis tables: BBA-C-BCS

Correspondence Table

Language	BCS			
	CS 1	CS 2	CS 3	Active Margin
ABAU	13	110	91	214
BIMIN	4	0	4	8
FAIW	2	2	2	6
MIAN	3	0	33	36
NAMIE	13	24	20	57
OKSAP	3	0	14	17
TELEF	13	8	52	73
TIFAL	18	8	21	47
YURI	9	52	8	69
Active Margin	78	204	245	527

Summary

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.489	.239			.748	.748	.030	.021
2	.284	.081			.252	1.000	.049	
Total		.320	168.504	.000[a]	1.000	1.000		

a. 16 degrees of freedom

Overview Row Points[a]

Language	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
ABAU	.406	-.246	.189	.039	.103	.181	.628	.372	1.000
BIMIN	.015	.730	-.833	.019	.034	.131	.435	.565	1.000
FAIW	.011	.069	-.522	.003	.000	.038	.017	.983	1.000
MIAN	.068	.830	.407	.058	.197	.140	.806	.194	1.000
NAMIE	.108	-.091	-.257	.008	.004	.089	.111	.889	1.000
OKSAP	.032	.808	.130	.022	.088	.007	.975	.025	1.000
TELEF	.139	.577	.064	.047	.193	.007	.988	.012	1.000
TIFAL	.089	.400	-.579	.044	.060	.371	.323	.677	1.000
YURI	.131	-.767	-.151	.080	.322	.037	.963	.037	1.000
Active Total	1.000			.320	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

BCS	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
CS 1	.148	.611	-2.320	.077	.055	.797	.170	.830	1.000
CS 2	.387	-1.254	.101	.146	.609	.004	.998	.002	1.000
CS 3	.465	.850	.655	.096	.336	.199	.833	.167	1.000
Active Total	1.000			.320	1.000	1.000			

a. Row Principal normalization

Appendix 30c. Arrow correspondence analysis tables: BBA-D-BMOD

Correspondence Table

	BMOD					
LANGUAGE	MOD 1	MOD 2	MOD 3	MOD 4	MOD 5	Active Margin
ABAU	106	3	102	3	0	214
BIMIN	8	0	0	0	0	8
FAIW	4	0	2	0	0	6
MIAN	35	1	0	0	0	36
NAMIE	27	10	19	0	1	57
OKSAP	17	0	0	0	0	17
TELEF	58	12	1	2	0	73
TIFAL	40	3	4	0	0	47
YURI	27	1	39	0	2	69
Active Margin	322	30	167	5	3	527

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.482	.232			.723	.723	.028	-.007
2	.259	.067			.209	.931	.046	
3	.138	.019			.059	.990		
4	.056	.003			.010	1.000		
Total		.321	169.241	.000[a]	1.000	1.000		

a. 32 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.408	-.343	-.062	.057	.205	.024	.842	.027	.869
BIMIN	.015	.618	-.498	.010	.025	.059	.601	.390	.991
FAIW	.011	-.058	-.250	.001	.000	.011	.045	.820	.864
MIAN	.069	.639	-.379	.038	.120	.154	.729	.256	.985
NAMIE	.107	.063	.519	.032	.002	.451	.013	.899	.912
OKSAP	.030	.618	-.498	.019	.050	.118	.601	.390	.991
TELEF	.139	.705	.259	.081	.295	.146	.849	.114	.964
TIFAL	.090	.493	-.161	.025	.093	.036	.871	.093	.964
YURI	.131	-.612	-.002	.063	.210	.000	.782	.000	.782
Active Total	1.000			.326	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
BMOD	Mass	1	2	Inertia	1	2	1	2	Total
MOD 1	.611	.627	-.471	.065	.240	.136	.856	.140	.996
MOD 2	.057	1.322	3.731	.077	.100	.792	.302	.694	.996
MOD 3	.317	-1.426	.160	.150	.644	.008	.994	.004	.998
MOD 4	.009	.320	.701	.010	.001	.005	.023	.032	.054
MOD 5	.006	-1.658	3.223	.019	.016	.059	.186	.203	.390
Active Total	1.000			.321	1.000	1.000			

a. Row Principal normalization

Appendix 30d. Arrow correspondence analysis tables: BBA-E-STRCT

Correspondence Table

	STRCT			
LANGUAGE	STRCT 1	STRCT 2	STRCT 3	Active Margin
ABAU	23	199	3	225
BIMIN	0	8	0	8
FAIW	0	6	0	6
MIAN	0	31	5	36
NAMIE	22	36	0	58
OKSAP	0	19	0	19
TELEF	1	73	1	75
TIFAL	1	47	0	48
YURI	12	60	2	74
Active Margin	59	479	11	549

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.352	.124			.720	.720	.047	.190
2	.220	.048			.280	1.000	.074	
Total		.172	94.665	.000[a]	1.000	1.000		

a. 16 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.410	-.006	-.051	.001	.000	.022	.012	.988	1.000
BIMIN	.015	-.302	-.234	.002	.011	.017	.624	.376	1.000
FAIW	.011	-.302	-.234	.002	.008	.012	.624	.376	1.000
MIAN	.066	-.525	.733	.053	.146	.729	.339	.661	1.000
NAMIE	.106	.878	.100	.082	.655	.022	.987	.013	1.000
OKSAP	.035	-.302	-.234	.005	.025	.039	.624	.376	1.000
TELEF	.137	-.282	-.130	.013	.088	.048	.825	.175	1.000
TIFAL	.087	-.237	-.216	.009	.040	.084	.547	.453	1.000
YURI	.135	.159	.097	.005	.027	.026	.729	.271	1.000
Active Total	1.000			.172	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
STRCT	Mass	1	2	Inertia	1	2	1	2	Total
STRCT 1	.107	2.808	.648	.107	.847	.045	.980	.020	1.000
STRCT 2	.872	-.302	-.234	.012	.080	.048	.810	.190	1.000
STRCT 3	.020	-1.909	6.728	.053	.073	.907	.172	.828	1.000
Active Total	1.000			.172	1.000	1.000			

a. Row Principal normalization

Appendix 30e. Arrow correspondence analysis tables: BBA-F-BATT

Correspondence Table

	BATT		
LANGUAGE	ATT 1	ATT 2	Active Margin
ABAU	219	5	224
BIMIN	8	0	8
FAIW	6	0	6
MIAN	4	32	36
NAMIE	58	0	58
OKSAP	6	13	19
TELEF	22	53	75
TIFAL	45	4	49
YURI	74	0	74
Active Margin	442	107	549

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation
1	.794	.631			1.000	1.000	.029	.794
Total		.631	346.536	.000[a]	1.000	1.000		

a. 8 degrees of freedom

Overview Row Points

		Score in Dimension		Contribution		
				Of Point to Inertia of Dimension	Of Dimension to Inertia of Point Overview Row Points	
	Mass	1	Inertia	1	1	Total
ABAU	.408	-.436	.077	.123	1.000	1.000
BIMIN	.015	-.492	.004	.006	1.000	1.000
FAIW	.011	-.492	.003	.004	1.000	1.000
MIAN	.066	1.752	.201	.319	1.000	1.000
NAMIE	.106	-.492	.026	.041	1.000	1.000
OKSAP	.035	1.235	.053	.084	1.000	1.000
TELEF	.137	1.292	.228	.361	1.000	1.000
TIFAL	.089	-.286	.007	.012	1.000	1.000
YURI	.135	-.492	.033	.052	1.000	1.000
Active Total	1.000		.631	1.000		

Table Caption

Overview Column Points[a]

		Score in Dimension		Contribution		
				Of Point to Inertia of Dimension	Of Dimension to Inertia of Point	
BATT	Mass	1	Inertia	1	1	Total
ATT 1	.805	-.492	.123	.195	1.000	1.000
ATT 2	.195	2.032	.508	.805	1.000	1.000
Active Total	1.000		.631	1.000		

a. Row Principal normalization

Appendix 30f. Arrow correspondence analysis tables: PWHA-C-HCS

Correspondence Table

	HCS									
LANGUAGE	ROUND	OVAL	BI-CON	TD	PC	TRIAG	RHOMB	SQU	MEN	Active Margin
ABAU	48	10	11	3	20	7	13	3	0	115
BIMIN	6	2	1	2	5	0	1	1	0	18
FAIW	17	0	1	4	4	0	0	2	0	28
MIAN	5	2	3	17	11	1	0	1	0	40
NAMIE	44	4	7	0	0	3	18	0	3	79
OKSAP	18	5	0	10	8	0	0	1	0	42
TELEF	21	4	4	21	36	1	0	8	0	95
TIFAL	35	6	11	33	13	3	1	1	0	103
YURI	25	1	6	12	0	14	5	1	0	64
Active Margin	219	34	44	102	97	29	38	18	3	584

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.532	.283			.569	.569	.027	.000
2	.327	.107			.215	.784	.043	
3	.226	.051			.103	.887		
4	.164	.027			.054	.941		
5	.144	.021			.042	.983		
6	.090	.008			.016	.999		
7	.021	.000			.001	1.000		
8	.010	.000			.000	1.000		
Total		.497	290.223	.000[a]	1.000	1.000		

a. 64 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.197	-.285	.181	.038	.057	.061	.417	.169	.586
BIMIN	.031	.207	.382	.007	.005	.042	.185	.629	.814
FAIW	.048	.078	.158	.019	.001	.011	.015	.062	.077
MIAN	.068	.712	-.218	.047	.123	.030	.744	.070	.813
NAMIE	.135	-.969	.252	.147	.449	.080	.867	.059	.926
OKSAP	.072	.299	.116	.021	.023	.009	.303	.046	.349
TELEF	.163	.648	.261	.091	.242	.104	.750	.121	.871
TIFAL	.176	.255	-.251	.039	.040	.105	.291	.284	.575
YURI	.110	-.397	-.736	.087	.061	.557	.199	.682	.881
Active Total	1.000			.497	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
HCS	Mass	1	2	Inertia	1	2	1	2	Total
ROUND	.375	-.520	.173	.043	.101	.011	.670	.028	.698
OVAL	.058	.034	.698	.016	.000	.028	.001	.189	.190
BI-CON	.075	-.361	-.532	.013	.010	.021	.210	.173	.383
TD	.175	1.116	-1.127	.099	.218	.222	.620	.238	.858
PC	.166	1.185	1.047	.094	.233	.182	.699	.206	.905
TRIAG	.050	-1.016	-2.909	.079	.051	.420	.184	.569	.753
RHOMB	.065	-2.109	.824	.094	.289	.044	.876	.050	.926
SQU	.031	1.093	1.168	.026	.037	.042	.399	.172	.571
MEN	.005	-3.425	2.361	.033	.060	.029	.519	.093	.612
Active Total	1.000			.497	1.000	1.000			

a. Row Principal normalization

Appendix 30g. Arrow correspondence analysis tables: PWHA-D-HMOD

Correspondence Table

	HMOD						
LANGUAGE	MOD 1	MOD 2	MOD 3	MOD 4	MOD 5	MOD 6	Active Margin
ABAU	60	6	11	23	7	8	115
BIMIN	5	0	0	0	1	12	18
FAIW	3	0	0	1	0	24	28
MIAN	4	0	0	0	1	35	40
NAMIE	41	1	2	5	4	26	79
OKSAP	17	0	0	0	0	25	42
TELEF	9	0	0	0	2	84	95
TIFAL	19	0	0	6	3	75	103
YURI	7	0	0	51	2	4	64
Active Margin	165	7	13	86	20	293	584

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.736	.542			.645	.645	.026	.430
2	.519	.269			.321	.966	.038	
3	.157	.025			.029	.996		
4	.061	.004			.004	1.000		
5	.002	.000			.000	1.000		
Total		.840	490.279	.000[a]	1.000	1.000		

a. 40 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.197	-.665	.720	.195	.161	.380	.446	.524	.969
BIMIN	.031	.460	.041	.008	.012	.000	.851	.007	.858
FAIW	.048	.618	-.334	.025	.034	.020	.744	.217	.961
MIAN	.068	.697	-.285	.040	.061	.021	.837	.140	.978
NAMIE	.135	-.054	.490	.042	.001	.121	.009	.767	.777
OKSAP	.072	.386	.185	.021	.020	.009	.521	.119	.641
TELEF	.163	.707	-.298	.098	.150	.054	.830	.148	.977
TIFAL	.176	.432	-.193	.040	.061	.024	.831	.165	.996
YURI	.110	-1.573	-.955	.372	.501	.372	.730	.269	.999
Active Total	1.000			.840	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
HMOD	Mass	1	2	Inertia	1	2	1	2	Total
MOD 1	.283	-.280	1.159	.122	.022	.380	.099	.840	.939
MOD 2	.012	-1.066	2.554	.035	.014	.078	.214	.609	.823
MOD 3	.022	-1.053	2.544	.063	.025	.144	.214	.620	.834
MOD 4	.147	-1.987	-1.347	.387	.581	.267	.814	.186	1.000
MOD 5	.034	-.383	.683	.011	.005	.016	.251	.397	.649
MOD 6	.502	.839	-.478	.223	.353	.115	.859	.138	.997
Active Total	1.000			.840	1.000	1.000			

a. Row Principal normalization

Appendix 30h. Arrow correspondence analysis tables: PWHA/BTA-E-STMCRCS

Correspondence Table

	STMCRCS								
LANGUAGE	RND	OVAL	BI-CON	TD	PC	TRIAG	RHOMB	SQU	Active Margin
ABAU	136	28	2	1	21	8	6	18	220
BIMIN	6	2	1	2	5	0	1	1	18
FAIW	17	0	1	4	4	0	0	2	28
MIAN	19	6	3	17	13	1	0	1	60
NAMIE	91	7	6	0	0	7	15	44	170
OKSAP	18	5	0	10	8	0	0	1	42
TELEF	21	4	4	21	36	1	0	8	95
TIFAL	37	6	10	33	12	3	1	1	103
YURI	75	21	1	1	0	0	4	2	104
Active Margin	420	79	28	89	99	20	27	78	840

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.569	.323			.639	.639	.025	.121
2	.324	.105			.208	.847	.034	
3	.241	.058			.115	.962		
4	.091	.008			.016	.978		
5	.081	.006			.013	.991		
6	.067	.004			.009	1.000		
7	.015	.000			.000	1.000		
Total		.506	425.251	.000[a]	1.000	1.000		

a. 56 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.262	-.313	.187	.044	.079	.087	.585	.209	.794
BIMIN	.021	.359	-.047	.007	.009	.000	.371	.006	.377
FAIW	.033	.171	-.002	.007	.003	.000	.148	.000	.148
MIAN	.071	.729	.061	.039	.117	.002	.962	.007	.969
NAMIE	.202	-.643	-.490	.134	.259	.462	.624	.362	.987
OKSAP	.050	.499	.218	.018	.038	.023	.677	.130	.807
TELEF	.113	.836	-.253	.105	.244	.069	.751	.069	.820
TIFAL	.123	.675	-.028	.086	.173	.001	.650	.001	.652
YURI	.124	-.448	.550	.065	.077	.356	.381	.574	.955
Active Total	1.000			.506	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
STMCRCS	Mass	1	2	Inertia	1	2	1	2	Total
RND	.500	-.474	.463	.050	.112	.107	.730	.228	.958
OVAL	.094	-.302	1.628	.033	.009	.249	.084	.798	.882
BI-CON	.033	.870	-1.077	.025	.025	.039	.332	.166	.498
TD	.106	2.010	-.254	.155	.428	.007	.893	.005	.898
PC	.118	1.486	-.309	.118	.260	.011	.713	.010	.723
TRIAG	.024	-.528	-1.050	.011	.007	.026	.198	.254	.452
RHOMB	.032	-1.408	-1.444	.031	.064	.067	.663	.227	.891
SQU	.093	-1.013	-2.305	.084	.095	.493	.365	.616	.981
Active Total	1.000			.506	1.000	1.000			

a. Row Principal normalization

Appendix 30i. Arrow correspondence analysis tables: BTA-C-HCS

Correspondence Table

	HCS								
LANGUAGE	RND	OVAL	BI-CON	TD	PC	TRIAG	RHOMB	SQU	Active Margin
ABAU	61	13	6	2	1	5	1	16	105
MIAN	13	4	1	0	2	0	0	0	20
NAMIE	43	2	1	0	0	1	0	44	91
YURI	14	17	2	1	0	2	0	4	40
Active Margin	131	36	10	3	3	8	1	64	256

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.494	.244			.664	.664	.048	.204
2	.290	.084			.229	.893	.074	
3	.199	.039			.107	1.000		
Total		.368	94.095	.000[a]	1.000	1.000		

a. 21 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.410	-.145	.099	.033	.035	.047	.265	.122	.387
MIAN	.078	-.568	.741	.080	.103	.511	.314	.535	.849
NAMIE	.355	.606	-.067	.136	.535	.019	.962	.012	.974
YURI	.156	-.714	-.477	.119	.326	.423	.670	.299	.969
Active Total	1.000			.368	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
HCS	Mass	1	2	Inertia	1	2	1	2	Total
RND	.512	-.005	.553	.016	.000	.157	.000	.832	.833
OVAL	.141	-1.717	-1.320	.128	.414	.245	.789	.161	.950
BI-CON	.039	-.926	.371	.011	.034	.005	.722	.040	.762
TD	.012	-1.371	-1.109	.009	.022	.014	.578	.130	.708
PC	.012	-1.749	6.271	.058	.036	.461	.151	.666	.817
TRIAG	.031	-.792	-.785	.012	.020	.019	.387	.131	.517
RHOMB	.004	-.594	1.173	.006	.001	.005	.060	.080	.140
SQU	.250	1.376	-.610	.127	.473	.093	.911	.062	.973
Active Total	1.000			.368	1.000	1.000			

a. Row Principal normalization

Appendix 30j. Arrow correspondence analysis tables: BTA-D-HMOD

Correspondence Table

	HMOD				
LANGUAGE	MOD 1	MOD 4	MOD 5	MOD 6	Active Margin
ABAU	32	11	58	4	105
MIAN	5	2	12	1	20
NAMIE	9	1	79	2	91
YURI	28	7	5	0	40
Active Margin	74	21	154	7	256

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.527	.278			.963	.963	.047	-.002
2	.103	.011			.037	1.000	.061	
3	.003	.000			.000	1.000		
Total		.288	73.782	.000[a]	1.000	1.000		

a. 9 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.410	-.084	-.091	.006	.010	.324	.459	.540	1.000
MIAN	.078	.035	-.163	.002	.000	.198	.045	.952	.997
NAMIE	.355	.546	.088	.109	.382	.260	.975	.025	1.000
YURI	.156	-1.039	.121	.171	.608	.219	.987	.013	1.000
Active Total	1.000			.288	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
HMOD	Mass	1	2	Inertia	1	2	1	2	Total
MOD 1	.289	-1.299	.584	.137	.488	.099	.992	.008	1.000
MOD 4	.082	-1.300	-1.771	.041	.139	.257	.934	.066	1.000
MOD 5	.602	.783	.178	.103	.369	.019	.998	.002	1.000
MOD 6	.027	.407	-4.781	.008	.005	.625	.160	.839	1.000
Active Total	1.000			.288	1.000	1.000			

a. Row Principal normalization

Appendix 30k. Arrow correspondence analysis tables: BIND-A

Correspondence Table

	BINDING								
LANGUAGE	WHIP1	WHIP2	WHIP4	KNOT1	BRAID1	BRAID2	BRAID3	BRAID4	Active Margin
ABAU	157	1	2	39	7	130	1	40	377
BIMIN	6	0	0	0	0	18	1	0	25
FAIW	8	0	0	0	3	19	1	2	33
MIAN	0	0	0	2	32	31	0	17	82
NAMIE	92	4	5	64	0	31	1	4	201
OKSAP	5	0	0	0	2	47	0	1	55
TELEF	2	0	0	0	13	116	2	33	166
TIFAL	13	0	0	3	104	20	0	1	141
YURI	25	0	0	50	0	75	0	4	154
Active Margin	308	5	7	158	161	487	6	102	1234

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.722	.522			.579	.579	.023	.282
2	.503	.253			.281	.860	.020	
3	.270	.073			.081	.941		
4	.189	.036			.039	.980		
5	.111	.012			.014	.994		
6	.074	.005			.006	1.000		
7	.001	.000			.000	1.000		
Total		.901	1111.908	.000[a]	1.000	1.000		

a. 56 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.306	-.353	.051	.069	.073	.003	.549	.011	.560
BIMIN	.020	-.254	-.557	.018	.002	.025	.074	.355	.429
FAIW	.027	-.008	-.400	.010	.000	.017	.000	.430	.430
MIAN	.066	.905	-.286	.070	.104	.021	.777	.078	.854
NAMIE	.163	-.623	.698	.148	.121	.313	.427	.537	.964
OKSAP	.045	-.071	-.761	.040	.000	.102	.006	.646	.651
TELEF	.135	.105	-.865	.107	.003	.398	.014	.944	.958
TIFAL	.114	1.725	.516	.372	.652	.120	.913	.082	.995
YURI	.125	-.430	.025	.067	.044	.000	.344	.001	.345
Active Total	1.000			.901	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
BINDING	Mass	1	2	Inertia	1	2	1	2	Total
WHIP1	.250	-.639	.865	.129	.102	.187	.413	.367	.779
WHIP2	.004	-1.090	2.245	.012	.005	.020	.203	.417	.620
WHIP4	.006	-1.046	2.026	.014	.006	.023	.238	.433	.671
KNOT1	.128	-.827	1.222	.130	.087	.191	.351	.372	.724
BRAID1	.130	2.465	.758	.433	.793	.075	.956	.044	1.000
BRAID2	.395	-.121	-.991	.110	.006	.388	.027	.891	.919
BRAID3	.005	-.328	-1.276	.012	.001	.008	.022	.165	.188
BRAID4	.083	.041	-1.143	.061	.000	.108	.001	.448	.449
Active Total	1.000			.901	1.000	1.000			

a. Row Principal normalization

Appendix 30l. Arrow correspondence analysis tables: BIND-B

Correspondence Table

	BINDTECH							
LANGUAGE	WHIP1	WHIP3	WHIP4	KNOT1	BRAID2	BRAID4	BRAID5	Active Margin
ABAU	5	1	2	21	74	6	0	109
BIMIN	0	0	0	0	11	0	0	11
FAIW	0	0	0	0	16	0	0	16
MIAN	0	0	0	2	16	0	0	18
NAMIE	16	1	4	53	31	2	0	107
OKSAP	0	0	0	0	12	1	1	14
TELEF	0	0	0	0	70	3	0	73
TIFAL	0	0	0	0	17	1	0	18
YURI	0	6	0	17	42	0	0	65
Active Margin	21	8	6	93	289	13	1	431

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.581	.338			.693	.693	.035	.049
2	.279	.078			.160	.853	.062	
3	.246	.061			.125	.978		
4	.100	.010			.021	.998		
5	.024	.001			.001	1.000		
6	.013	.000			.000	1.000		
Total		.487	210.002	.000[a]	1.000	1.000		

a. 48 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.253	-.045	-.064	.008	.002	.013	.064	.127	.191
BIMIN	.026	-.640	.046	.013	.031	.001	.834	.004	.839
FAIW	.037	-.640	.046	.018	.045	.001	.834	.004	.839
MIAN	.042	-.406	.064	.010	.020	.002	.698	.017	.715
NAMIE	.248	.906	-.115	.208	.603	.042	.979	.016	.995
OKSAP	.032	-.731	-1.000	.080	.051	.417	.217	.406	.623
TELEF	.169	-.630	-.027	.072	.199	.002	.929	.002	.931
TIFAL	.042	-.626	-.052	.018	.049	.001	.907	.006	.913
YURI	.151	.001	.519	.060	.000	.521	.000	.676	.676
Active Total	1.000			.487	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
BINDTECH	Mass	1	2	Inertia	1	2	1	2	Total
WHIP1	.049	2.012	-1.318	.076	.197	.085	.875	.087	.962
WHIP3	.019	.321	4.708	.053	.002	.411	.012	.605	.617
WHIP4	.014	1.743	-1.255	.017	.042	.022	.835	.100	.935
KNOT1	.216	1.473	.210	.160	.468	.010	.987	.005	.992
BRAID2	.671	-.640	.046	.094	.275	.001	.984	.001	.986
BRAID4	.030	-.389	-1.721	.017	.005	.089	.089	.401	.489
BRAID5	.002	-2.165	-12.827	.069	.011	.382	.053	.431	.484
Active Total	1.000			.487	1.000	1.000			

a. Row Principal normalization

Appendix 30m. Arrow correspondence analysis tables: BIND-C

Correspondence Table

LANGUAGE	BINDING							
	WHIP1	KNOT1	KNOT2	BRAID1	BRAID2	BRAID3	BRAID4	Active Margin
ABAU	3	14	0	6	101	0	14	138
BIMIN	0	0	0	0	4	0	0	4
FAIW	0	0	1	0	2	0	3	6
MIAN	0	0	24	0	9	0	5	38
NAMIE	0	11	0	0	10	0	4	25
OKSAP	0	0	6	0	5	1	2	14
TELEF	0	0	55	2	15	0	18	90
TIFAL	1	0	2	19	16	0	2	40
YURI	0	34	0	0	15	0	2	51
Active Margin	4	59	88	27	177	1	50	406

Summary

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.766	.587			.471	.471	.023	.329
2	.617	.380			.305	.776	.042	
3	.431	.185			.149	.925		
4	.259	.067			.054	.979		
5	.159	.025			.020	.999		
6	.032	.001			.001	1.000		
Total		1.246	505.819	.000[a]	1.000	1.000		

a. 48 degrees of freedom

Overview Row Points[a]

LANGUAGE	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
					1	2	1	2	Total
ABAU	.340	-.426	.234	.156	.105	.049	.394	.119	.513
BIMIN	.010	-.412	.342	.013	.003	.003	.131	.090	.222
FAIW	.015	.380	-.069	.021	.004	.000	.102	.003	.106
MIAN	.094	.996	-.266	.104	.158	.017	.893	.064	.957
NAMIE	.062	-.727	-.554	.056	.055	.050	.583	.338	.921
OKSAP	.034	.707	-.153	.082	.029	.002	.210	.010	.220
TELEF	.222	1.019	-.230	.248	.392	.031	.927	.047	.974
TIFAL	.099	-.210	1.493	.281	.007	.578	.015	.781	.796
YURI	.126	-1.073	-.905	.285	.246	.271	.507	.361	.868
Active Total	1.000			1.246	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

BINDING	Mass	Score in Dimension		Inertia	Contribution				
		1	2		Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
					1	2	1	2	Total
WHIP1	.010	-.633	1.442	.013	.004	.020	.183	.614	.796
KNOT1	.145	-1.457	-1.497	.345	.308	.326	.525	.359	.884
KNOT2	.217	1.629	-.508	.370	.575	.056	.913	.058	.970
BRAID1	.067	-.284	2.854	.279	.005	.542	.011	.738	.750
BRAID2	.436	-.412	.342	.128	.074	.051	.340	.151	.491
BRAID3	.002	1.205	-.401	.069	.004	.000	.030	.002	.033
BRAID4	.123	.492	-.197	.042	.030	.005	.411	.043	.454
Active Total	1.000			1.246	1.000	1.000			

a. Row Principal normalization

Appendix 30n. Arrow correspondence analysis tables: BIND-D

Correspondence Table

	BINDING							
LANGUAGE	WHIP1	WHIP3	WHIP4	WHIP5	BRAID2	BRAID4	LPBAND	Active Margin
ABAU	20	2	71	109	0	2	3	207
BIMIN	6	0	0	2	0	0	0	8
FAIW	1	0	1	4	0	0	0	6
MIAN	5	0	0	4	0	23	3	35
NAMIE	9	10	18	16	1	0	0	54
OKSAP	2	0	0	5	5	3	0	15
TELEF	5	0	1	23	0	32	7	68
TIFAL	12	3	3	28	0	0	1	47
YURI	10	32	12	10	0	0	0	64
Active Margin	70	47	106	201	6	60	14	504

Summary

					Proportion of Inertia		Confidence Singular Value	
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.741	.549			.447	.447	.028	.215
2	.548	.300			.244	.691	.045	
3	.523	.273			.222	.913		
4	.282	.080			.065	.978		
5	.160	.026			.021	.999		
6	.041	.002			.001	1.000		
Total		1.230	619.879	.000[a]	1.000	1.000		

a. 48 degrees of freedom

Overview Row Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
LANGUAGE	Mass	1	2	Inertia	1	2	1	2	Total
ABAU	.411	.293	.462	.136	.064	.292	.259	.644	.904
BIMIN	.016	.162	.025	.051	.001	.000	.008	.000	.008
FAIW	.012	.243	.487	.005	.001	.009	.132	.530	.662
MIAN	.069	-1.660	-.436	.213	.348	.044	.897	.062	.959
NAMIE	.107	.504	-.169	.037	.050	.010	.736	.083	.819
OKSAP	.030	-.710	.236	.270	.027	.005	.055	.006	.062
TELEF	.135	-1.210	-.140	.212	.360	.009	.933	.012	.946
TIFAL	.093	.221	.193	.041	.008	.012	.111	.085	.196
YURI	.127	.781	-1.210	.265	.141	.619	.293	.702	.995
Active Total	1.000			1.230	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

		Score in Dimension			Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
BINDING	Mass	1	2	Inertia	1	2	1	2	Total
WHIP1	.139	.164	-.183	.062	.004	.005	.033	.022	.055
WHIP3	.093	1.211	-2.756	.291	.137	.708	.258	.731	.989
WHIP4	.210	.669	.508	.101	.094	.054	.513	.162	.674
WHIP5	.399	.157	.649	.066	.010	.168	.081	.762	.843
BRAID2	.012	-.923	.560	.269	.010	.004	.021	.004	.025
BRAID4	.119	-2.379	-.714	.394	.674	.061	.939	.046	.986
LPBAND	.028	-1.605	-.168	.047	.072	.001	.843	.005	.848
Active Total	1.000			1.230	1.000	1.000			

a. Row Principal normalization

Appendix 30o. Arrow correspondence analysis tables: BIND-E

Correspondence Table

LANGUAGE	BINDING			
	WP1(STR)	LPBAND	RAG	Active Margin
ABAU	80	41	6	127
BIMIN	6	0	0	6
FAIW	2	0	0	2
MIAN	23	11	0	34
NAMIE	21	1	3	25
OKSAP	9	1	0	10
TELEF	15	34	0	49
TIFAL	5	19	4	28
YURI	39	0	16	55
Active Margin	200	107	29	336

Summary

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.527	.278			.759	.759	.038	.114
2	.297	.088			.241	1.000	.052	
Total		.366	122.910	.000[a]	1.000	1.000		

a. 16 degrees of freedom

Overview Row Points[a]

LANGUAGE	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
ABAU	.378	.045	.133	.007	.003	.076	.102	.898	1.000
BIMIN	.018	-.543	.621	.012	.019	.078	.433	.567	1.000
FAIW	.006	-.543	.621	.004	.006	.026	.433	.567	1.000
MIAN	.101	.090	.299	.010	.003	.103	.084	.916	1.000
NAMIE	.074	-.576	.158	.027	.089	.021	.930	.070	1.000
OKSAP	.030	-.347	.521	.012	.013	.092	.307	.693	1.000
TELEF	.146	.815	-.070	.098	.349	.008	.993	.007	1.000
TIFAL	.083	.652	-.557	.061	.128	.294	.578	.422	1.000
YURI	.164	-.814	-.404	.135	.390	.303	.803	.197	1.000
Active Total	1.000			.366	1.000	1.000			

a. Row Principal normalization

Overview Column Points[a]

BINDING	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
WP1STR	.595	-.543	.621	.069	.175	.229	.707	.293	1.000
LPBAND	.318	1.414	-.374	.181	.637	.045	.978	.022	1.000
RAG	.086	-1.474	-2.900	.116	.188	.726	.449	.551	1.000
Active Total	1.000			.366	1.000	1.000			

a. Row Principal normalization

Appendix 31a. Arrow ANOVA tables and figures: BBA-A-BLDLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
BLDLGTH	521	100.0%	0	.0%	521	100.0%

Descriptives

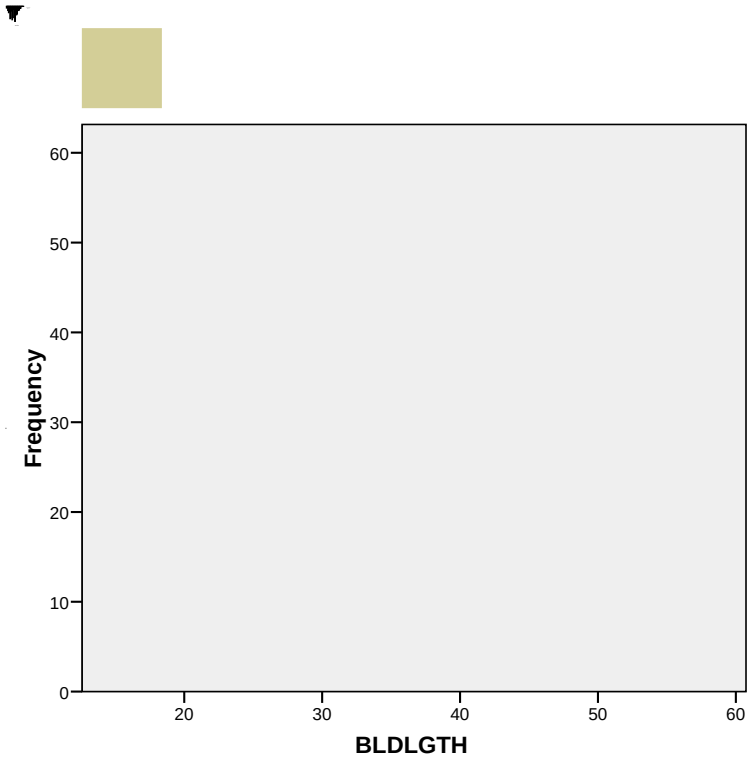
			Statistic	Std. Error
BLDLGTH	Mean		33.40	.350
	95% Confidence Interval for Mean	Lower Bound	32.71	
		Upper Bound	34.09	
	5% Trimmed Mean		33.26	
	Median		33.00	
	Variance		63.771	
	Std. Deviation		7.986	
	Minimum		15	
	Maximum		57	
	Range		42	
	Interquartile Range		12	
	Skewness		.226	.107
	Kurtosis		-.510	.214

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
BLDLGTH	.068	521	.000	.988	521	.000

a Lilliefors Significance Correction

Appendix 31b. Arrow ANOVA tables and figures: frequency histogram for BBA-A-BLDLGTH (Final Sample n=521)



Appendix 31c. Arrow ANOVA tables and figures: BBA-B-WHLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
WHLGTH	517	99.2%	4	.8%	521	100.0%

Descriptives

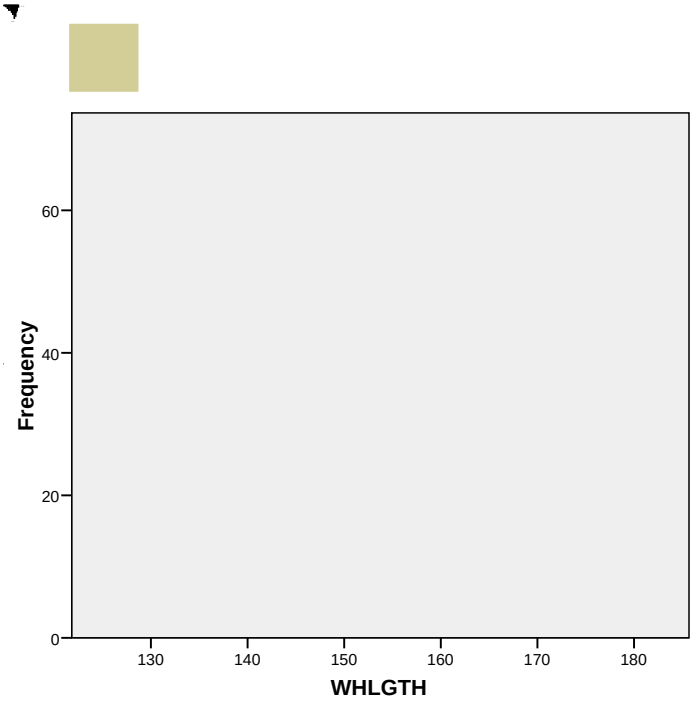
			Statistic	Std. Error
WHLGTH	Mean		160.85	.525
	95% Confidence Interval for Mean	Lower Bound	159.82	
		Upper Bound	161.89	
	5% Trimmed Mean		161.39	
	Median		163.00	
	Variance		142.676	
	Std. Deviation		11.945	
	Minimum		125	
	Maximum		182	
	Range		57	
	Interquartile Range		17	
	Skewness		-.672	.107
	Kurtosis		-.192	.214

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
WHLGTH	.102	517	.000	.955	517	.000

a Lilliefors Significance Correction

Appendix 31d. Arrow ANOVA tables and figures: frequency histogram for BBA-B-WHLGTH (Final Sample n=521)



Appendix 31e. Arrow ANOVA tables and figures: ANOVA for BBA-A-BLDLGTH

Descriptives

BLDLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bound		
ABAU	211	32.77	9.501	.654	31.48	34.06	15	57
BIMIN	8	28.63	4.897	1.731	24.53	32.72	24	36
FAIW	5	33.80	3.768	1.685	29.12	38.48	30	38
MIAN	35	38.71	2.408	.407	37.89	39.54	33	44
NAMIE	57	37.04	7.258	.961	35.11	38.96	24	51
OKSAP	17	31.41	5.161	1.252	28.76	34.07	21	40
TELEF	73	37.25	5.079	.594	36.06	38.43	26	48
TIFAL	47	28.32	5.692	.830	26.65	29.99	17	40
YURI	68	29.99	5.324	.646	28.70	31.27	20	45
Total	521	33.40	7.986	.350	32.71	34.09	15	57

Test of Homogeneity of Variances

BLDSLGTH

Levene Statistic	df1	df2	Sig.
17.371	8	512	.000

ANOVA

BLDSLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5161.454	8	645.182	11.798	.000
Within Groups	27999.706	512	54.687		
Total	33161.159	520			

Robust Tests of Equality of Means

BLDSLGTH

	Statistic(a)	df1	df2	Sig.
Welch	29.965	8	52.650	.000
Brown-Forsythe	21.001	8	232.975	.000

a Asymptotically F distributed.

Appendix 31f. Arrow ANOVA tables and figures: ANOVA for BBA-B-WHLGTH

Descriptives

WHLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	211	166.56	7.179	.494	165.58	167.53	139	182
BIMIN	8	137.38	5.012	1.772	133.18	141.57	132	145
FAIW	5	147.80	5.310	2.375	141.21	154.39	143	156
MIAN	35	156.89	6.583	1.113	154.62	159.15	142	168
NAMIE	56	164.89	6.341	.847	163.19	166.59	147	177
OKSAP	17	140.88	5.894	1.429	137.85	143.91	129	149
TELEF	73	152.74	6.241	.730	151.28	154.20	134	167
TIFAL	46	141.63	7.909	1.166	139.28	143.98	125	158
YURI	66	172.64	4.481	.552	171.53	173.74	161	181
Total	517	160.85	11.945	.525	159.82	161.89	125	182

Test of Homogeneity of Variances

WHLGTH

Levene Statistic	df1	df2	Sig.
1.909	8	508	.057

ANOVA

WHLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	51343.434	8	6417.929	146.351	.000
Within Groups	22277.394	508	43.853		
Total	73620.828	516			

Robust Tests of Equality of Means

WHLGTH

	Statistic(a)	df1	df2	Sig.
Welch	160.740	8	51.409	.000
Brown-Forsythe	170.594	8	173.808	.000

a Asymptotically F distributed.

Appendix 31g. Arrow ANOVA tables and figures: BTA-A-HDLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HDLGTH	246	100.0%	0	.0%	246	100.0%

Descriptives

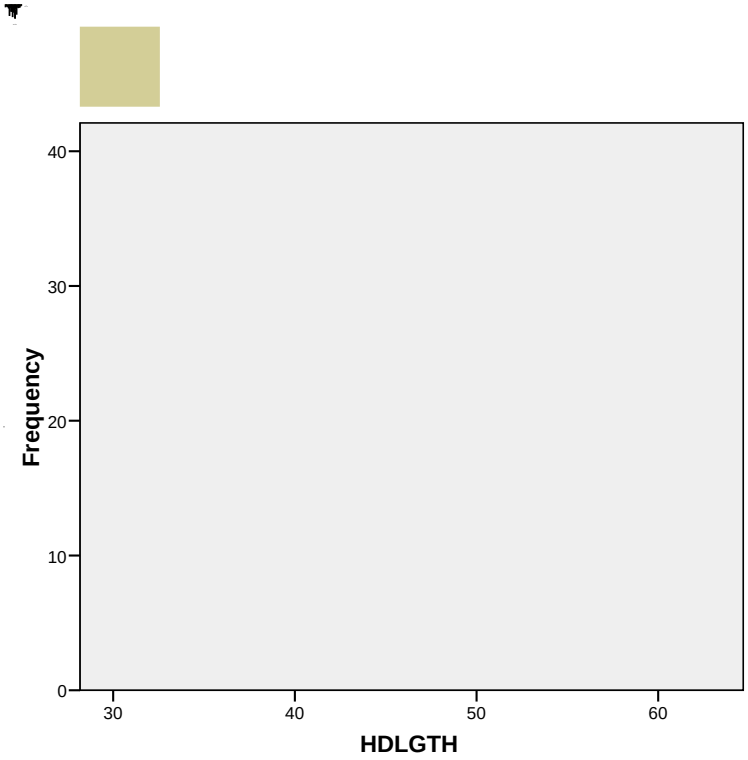
			Statistic	Std. Error
HDLGTH	Mean		47.38	.387
	95% Confidence Interval for Mean	Lower Bound	46.62	
		Upper Bound	48.14	
	5% Trimmed Mean		47.41	
	Median		48.00	
	Variance		36.792	
	Std. Deviation		6.066	
	Minimum		30	
	Maximum		62	
	Range		32	
	Interquartile Range		8	
	Skewness		-.122	.155
	Kurtosis		-.230	.309

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HDLGTH	.064	246	.015	.992	246	.180

a Lilliefors Significance Correction

Appendix 31h. Arrow ANOVA tables and figures: frequency histogram for BTA-A-HDLGTH (Final Sample n=246)



Appendix 31i. Arrow ANOVA tables and figures: BTA-B-WHLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
WHLGTH	246	100.0%	0	.0%	246	100.0%

Descriptives

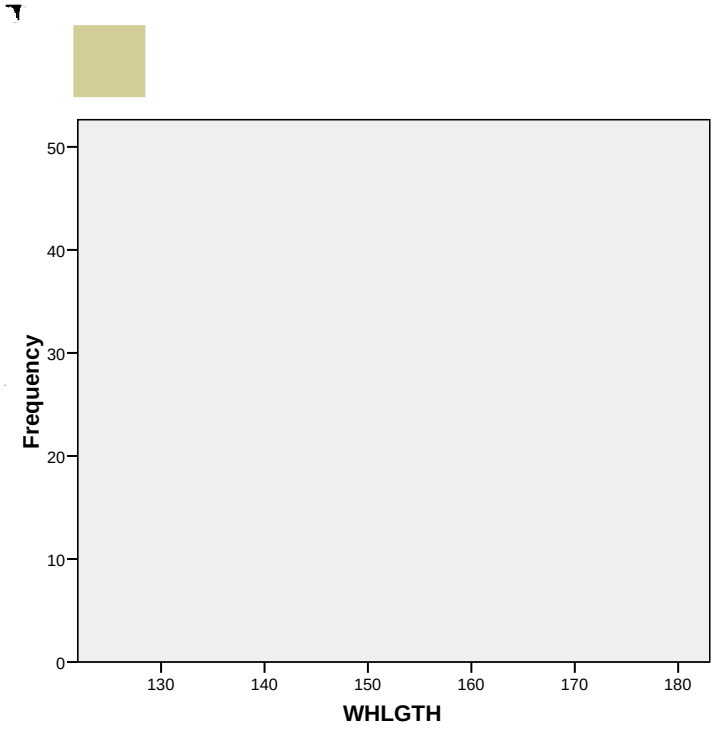
			Statistic	Std. Error
WHLGTH	Mean		163.04	.656
	95% Confidence Interval for Mean	Lower Bound	161.75	
		Upper Bound	164.34	
	5% Trimmed Mean		164.04	
	Median		165.00	
	Variance		105.806	
	Std. Deviation		10.286	
	Minimum		127	
	Maximum		178	
	Range		51	
	Interquartile Range		11	
	Skewness		-1.543	.155
	Kurtosis		2.248	.309

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
WHLGTH	.149	246	.000	.851	246	.000

a Lilliefors Significance Correction

Appendix 31j. Arrow ANOVA tables and figures: frequency histogram for BTA-B-WHLGTH (Final Sample n=246)



Appendix 31k. Arrow ANOVA tables and figures: ANOVA for BTA-A-HDLGTH

Descriptives

HDLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	98	49.10	4.819	.487	48.14	50.07	38	59
MIAN	20	38.00	3.742	.837	36.25	39.75	33	45
NAMIE	89	48.43	5.561	.590	47.26	49.60	37	62
YURI	39	45.49	6.253	1.001	43.46	47.51	30	61
Total	246	47.38	6.066	.387	46.62	48.14	30	62

Test of Homogeneity of Variances

HDLGTH

Levene Statistic	df1	df2	Sig.
1.766	3	242	.154

ANOVA

HDLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2287.583	3	762.528	27.434	.000
Within Groups	6726.498	242	27.795		
Total	9014.081	245			

Robust Tests of Equality of Means

HDLGTH

	Statistic(a)	df1	df2	Sig.
Welch	46.589	3	73.694	.000
Brown-Forsythe	28.784	3	144.763	.000

a Asymptotically F distributed.

Appendix 31l. Arrow ANOVA tables and figures: ANOVA for BTA-B-WHLGTH ANOVA

Descriptives

WHLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	98	165.48	5.606	.566	164.36	166.60	152	178
MIAN	20	136.05	5.296	1.184	133.57	138.53	127	148
NAMIE	89	163.53	7.373	.782	161.97	165.08	144	177
YURI	39	169.67	4.201	.673	168.30	171.03	159	175
Total	246	163.04	10.286	.656	161.75	164.34	127	178

Test of Homogeneity of Variances

WHLGTH

Levene Statistic	df1	df2	Sig.
4.806	3	242	.003

ANOVA

WHLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16886.253	3	5628.751	150.744	.000
Within Groups	9036.256	242	37.340		
Total	25922.508	245			

Robust Tests of Equality of Means

WHLGTH

	Statistic(a)	df1	df2	Sig.
Welch	207.442	3	74.262	.000
Brown-Forsythe	179.212	3	152.757	.000

a Asymptotically F distributed.

Appendix 31m. Arrow ANOVA tables and figures: PWHA-A-HDLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
HDLGTH	574	100.0%	0	.0%	574	100.0%

Descriptives

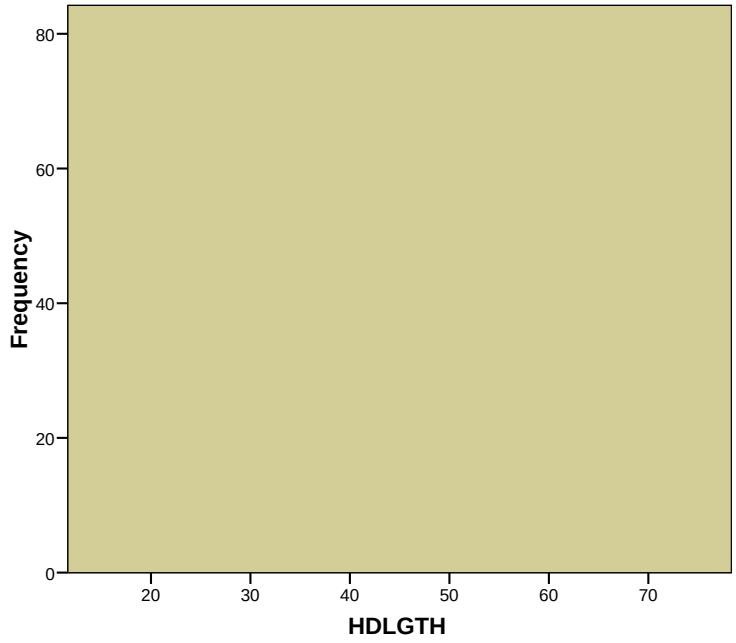
			Statistic	Std. Error
HDLGTH	Mean		39.94	.449
	95% Confidence Interval for Mean	Lower Bound	39.06	
		Upper Bound	40.82	
	5% Trimmed Mean		39.65	
	Median		39.00	
	Variance		115.464	
	Std. Deviation		10.745	
	Minimum		15	
	Maximum		74	
	Range		59	
	Interquartile Range		13	
	Skewness		.431	.102
	Kurtosis		.194	.204

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
HDLGTH	.078	574	.000	.985	574	.000

a Lilliefors Significance Correction

Appendix 31n. Arrow ANOVA tables and figures: frequency histogram for PWHA-A-HDLGTH (Final Sample n=574)



Appendix 31o. Arrow ANOVA tables and figures: PWHA-B-WHLGTH descriptive statistics

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
WHLGTH	561	97.7%	13	2.3%	574	100.0%

Descriptives

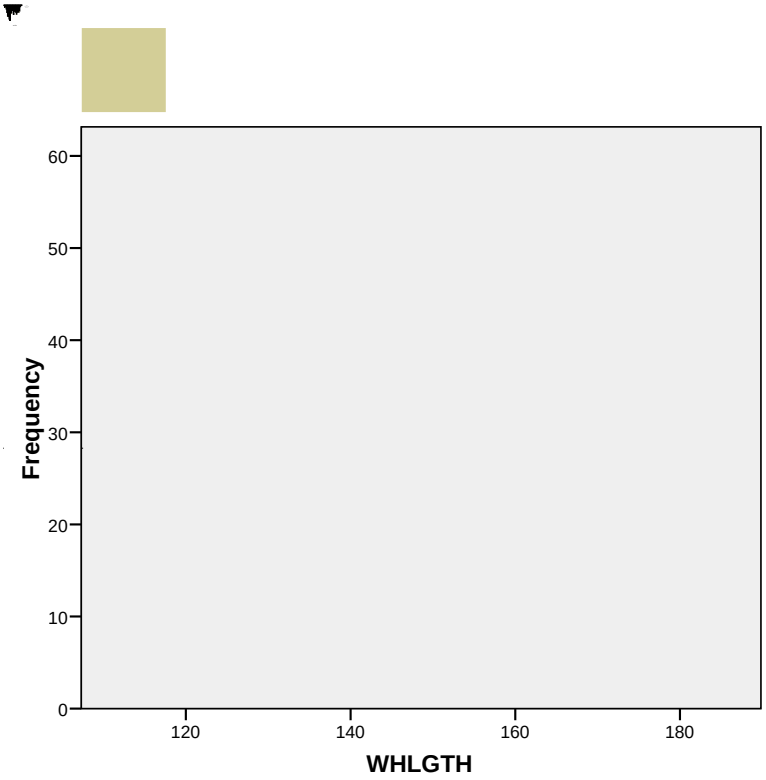
			Statistic	Std. Error
WHLGTH	Mean		147.70	.685
	95% Confidence Interval for Mean	Lower Bound	146.35	
		Upper Bound	149.04	
	5% Trimmed Mean		147.54	
	Median		144.00	
	Variance		263.333	
	Std. Deviation		16.228	
	Minimum		113	
	Maximum		184	
	Range		71	
	Interquartile Range		27	
	Skewness		.246	.103
	Kurtosis		-1.073	.206

Tests of Normality

	Kolmogorov-Smirnov(a)			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
WHLGTH	.113	561	.000	.957	561	.000

a Lilliefors Significance Correction

Appendix 31p. Arrow ANOVA tables and figures: frequency histogram for PWHA-B-WHLGTH (Final Sample n=561)



Appendix 31q. Arrow ANOVA tables and figures: ANOVA for PWHA-A-HDLGTH

Descriptives

HDLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean Lower Bnd	Upper Bnd	Minimum	Maximum
ABAU	114	52.69	8.998	.843	51.02	54.36	32	74
BIMIN	17	30.65	3.181	.771	29.01	32.28	26	36
FAIW	28	35.46	4.542	.858	33.70	37.23	26	46
MIAN	35	37.63	3.896	.659	36.29	38.97	29	44
NAMIE	76	42.14	6.570	.754	40.64	43.65	26	57
OKSAP	42	27.50	6.968	1.075	25.33	29.67	15	40
TELEF	95	34.28	6.958	.714	32.87	35.70	18	53
TIFAL	103	33.91	7.524	.741	32.44	35.38	17	52
YURI	64	46.55	6.928	.866	44.82	48.28	35	61
Total	574	39.94	10.745	.449	39.06	40.82	15	74

Test of Homogeneity of Variances

HDLGTH

Levene Statistic	df1	df2	Sig.
6.343	8	565	.000

ANOVA

HDLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	37200.286	8	4650.036	90.719	.000
Within Groups	28960.580	565	51.258		
Total	66160.866	573			

Appendix 31r. Arrow ANOVA tables and figures: ANOVA for PWHA-B-WHLGTH

Descriptives

WHLGTH

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bnd	Upper Bnd		
ABAU	114	164.57	8.459	.792	163.00	166.14	140	182
BIMIN	18	135.50	6.138	1.447	132.45	138.55	124	149
FAIW	27	134.56	8.464	1.629	131.21	137.90	122	153
MIAN	38	142.50	7.359	1.194	140.08	144.92	126	156
NAMIE	76	159.25	6.352	.729	157.80	160.70	142	174
OKSAP	39	132.51	6.452	1.033	130.42	134.60	121	146
TELEF	93	138.98	6.041	.626	137.73	140.22	122	152
TIFAL	92	134.42	7.182	.749	132.94	135.91	116	155
YURI	64	156.98	23.045	2.881	151.23	162.74	113	184
Total	561	147.70	16.228	.685	146.35	149.04	113	184

Test of Homogeneity of Variances

WHLGTH

Levene Statistic	df1	df2	Sig.
61.436	8	552	.000

ANOVA

WHLGTH

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	88756.477	8	11094.560	104.313	.000
Within Groups	58710.008	552	106.359		
Total	147466.485	560			

Robust Tests of Equality of Means

WHLGTH

	Statistic(a)	df1	df2	Sig.
Welch	186.097	8	148.848	.000
Brown-Forsythe	106.958	8	174.137	.000

a Asymptotically F distributed.