Free listing: a method to gain initial insight of a food category

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SAN LUIS
LA PAMPA
BUENOS AIRES
NEUQUÉN
RÍO NEGRO
CHUBUT
SANTA CRUZ
TIERRA DEL FUEGO, ANTARTIDA E ISLAS DEL ATLANTICO SUR
Falkland Islands (Islas Malvinas)
(administered by U.K., claimed by Argentina)
Stanley
Strait of Magellan
Cape Horn
Argentina
International boundary
Province boundary
National capital
Province capital
Railroad
Road
The city of Buenos Aires comprises a federal district.
0 100 200 300 Kilometers
0 100 200 300 Miles
Lambert Conformal Conic Projection, SP 33S/50S
Boundary representation is not necessarily authoritative.

Río Cuarto
Rosario
Venado Tuerto
General Villegas
Junín
Colonia
Buenos Aires
La Plata
BUENOS AIRES
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Necochea
Viedma
Nueve de Julio

Introduction and summary results

"Free Listing is a deceptively simple but powerful technique" *(Bernard, Russell. 2002. Research Methods in Anthropology)*

In Free Listing you ask informants to *"list all the X you know about"* or inquire *"what kinds of X are there?"*

X might be:

- *Cookie brands*
- *Movie stars*
- *Main meals*

-OR…

FRUITS

- **184 15-18 year-old adolescents**
  - 84 from low-income families
  - 100 from middle-high income families

- **Please list all the fruits you know**
  - whether you've eaten them or not
  - whether you like them or not

- Each one was given up to 15 minutes to complete their list

Adolescent listing all the fruits she knows

Crude list from 5 subjects

SUBJ1	SUBJ2	SUBJ3	SUBJ4	SUBJ5
banana	papaya	**banana**	mandarin	apple
pear	mango	apple	melon	kiwi
apple	sour cherry	apricot	orange	mandarin
kiwi	cherry	pear	kiwi	plum
nectarine	fig	mango	strawberry	orange
plum	pineapple	sour cherry	watermelon	watermelon
pomegranate	tuna	apricot	**banana**	coco
melon	peach	fig	melon	persimmon
watermelon	pear	strawberry	peach	pear
orange	**banana**	orange	apricot	**banana**
mandarin	apple	mandarin	grape	peach
fig	apricot	pineapple	cherry	sour cherry
bergamot	nectarine	kiwi	plum	fig
grape	melon	watermelon	mandarin	grape
strawberry	plum	nectarine	pear	apricot
peach	pomegranate	grape	pineapple	melon
coco	strawberry		persimmon	cherry
	kiwi		medlar	pineapple
	mandarin		coco	**bergamot**
	orange			
	coco			
	watermelon			

Transformed list showing position of each fruit for 5 subjects. This matrix is used to calculate summary stats and the distance matrix

Fruits mentioned by ≥ 25% of the subjects

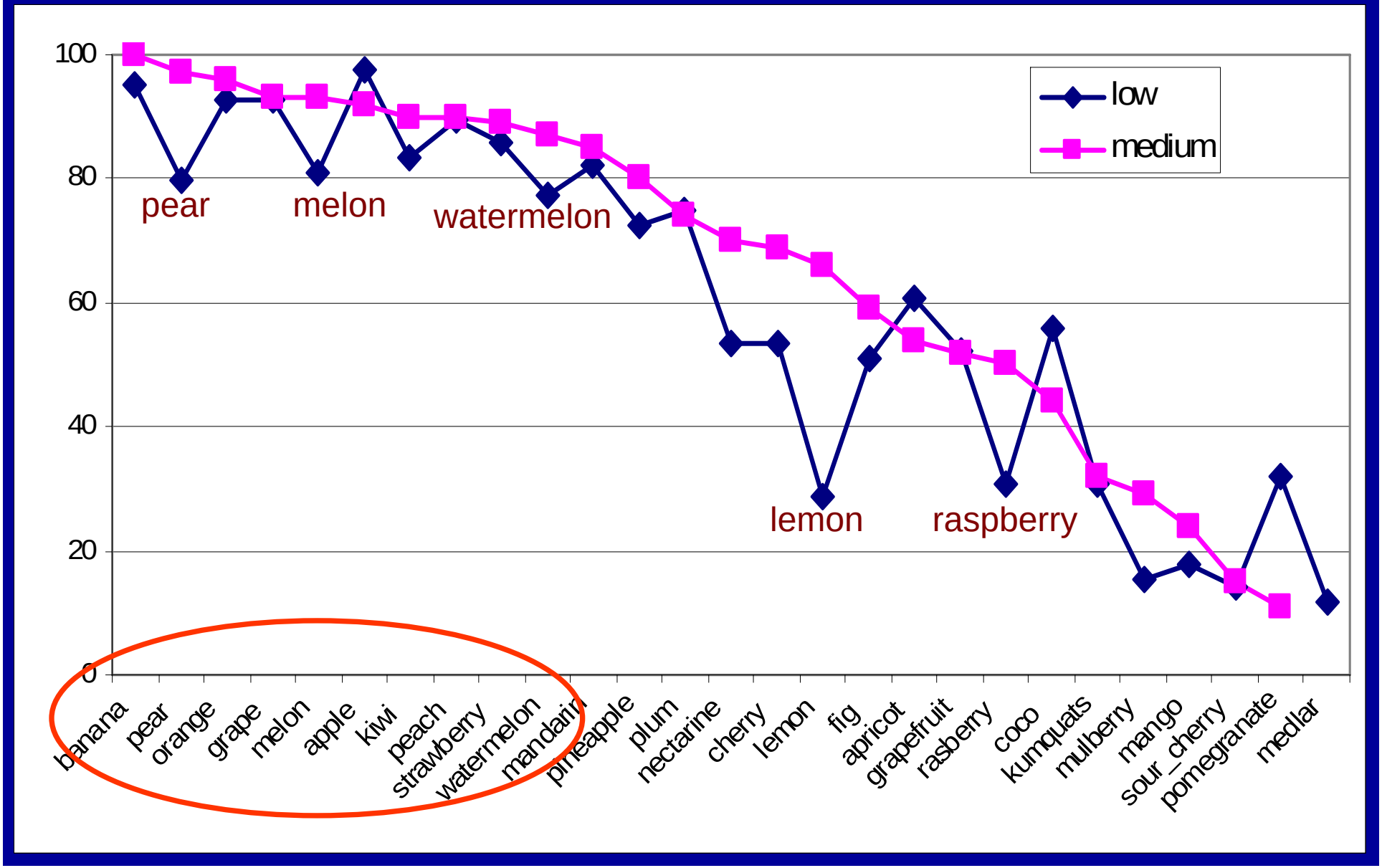
FRUITS	SUBJ1	SUBJ2	SUBJ3	SUBJ4	SUBJ5
pineapple	*	6	12	18	13
banana	1	10	1	10	1
cherry	*	4	8	17	*
plum	6	15	*	4	11
coco	17	21	*	7	*
peach	16	8	3	11	7
apricot	*	12	7	15	*
strawberry	15	17	9	*	2
raspberry	*	*	*	*	16
pomegranate	7	16	*	*	*
fig	12	5	*	13	*
kiwi	4	18	13	2	8
lemon	*	*	*	*	15
apple	3	11	2	1	3
mandarin	11	19	11	3	9
melon	8	14	*	16	5
orange	10	20	10	5	4
nectarine	5	13	15	*	*
pear	2	9	4	9	14
grapefruit	*	*	*	*	12
kumquats	*	*	*	*	*
watermelon	9	22	14	6	6
grape	14	23	16	14	10

Summary

Income	Minumum number listed	Maximum number listed	Average number listed
Low	7	24	16.6
Middle/high	13	26	18.1

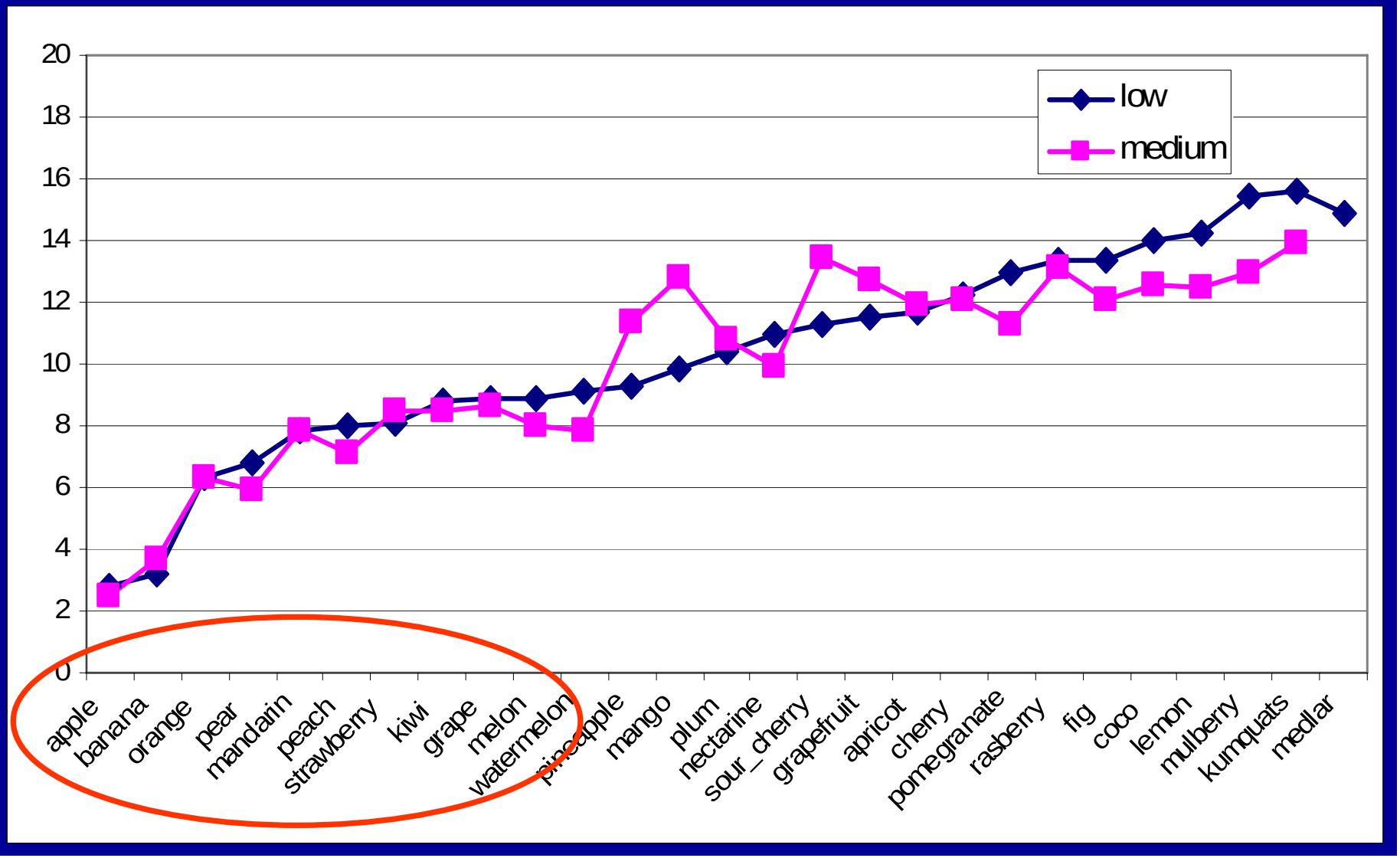
% consumers who mentioned each fruit

Only fruits mentioned by > 10% subjects



Average order of each fruit in the list

Only fruits mentioned by > 10% subjects



Core set of items

Most mentioned	Average listing order
Banana	Apple
Pear	Banana
Orange	Orange
Grape	Pear
Melon	Mandarin
Apple	Peach
Kiwi	Strawberry
Peach	Kiwi
Strawberry	Grape
Watermelon	Melon
Mandarin	Watermelon

Both lists coincide

These can be used for a future study on degree of liking or frequency of consumption

Cluster Analysis and Multidimensional Scaling

➔**The distance between items in a freelist can give glimpses of the underlying cognitive structure of the domain**

➔ **The difference in rank between two fruits would provide a natural measure of the distance between them in the mind of each subject**

SUBJ1	SUBJ2	SUBJ3	SUBJ4
banana	papaya	banana	apple
pear	mango	apple	melon
apple	sour cherry	peach	orange
kiwi	cherry	pear	kiwi
nectarine	fig	mango	strawberry
plum	pineapple	sour cherry	watermelon
pomegranate	tuna	apricot	banana
melon	peach	cherry	melon
watermelon	pear	strawberry	peach
orange	banana	orange	apricot
mandarin	apple	mandarin	grape
fig	apricot	pineapple	cherry
bergamot	nectarine	kiwi	plum
grape	melon	watermelon	mandarin
strawberry	plum	nectarine	pear
peach	pomegranate	grape	pineapple
coco	strawberry		persimmon
	kiwi		medlar
	mandarin		coco
	orange		
	coco		
	watermelon		

FRUITS	SUBJ1	SUBJ2	SUBJ3	SUBJ4
pineapple	*	6	12	18
banana	1	10	1	10
cherry	*	4	8	17
plum	6	15	*	4
coco	17	21	*	7
peach	16	8	3	11
apricot	*	12	7	15
strawberry	15	17	9	*
raspberry	*	*	*	*
pomegranate	7	16	*	*
fig	12	5	*	13
kiwi	4	18	13	2
lemon	*	*	*	*
apple	3	11	2	1
mandarin	11	19	11	3
melon	8	14	*	16
orange	10	20	10	5
nectarine	5	13	15	*
pear	2	9	4	9
grapefruit	*	*	*	*
kumquats	*	*	*	*
watermelon	9	22	14	6
grape	14	23	16	14

Distance matrix:

- *Euclidean*
- *Cityblock:*

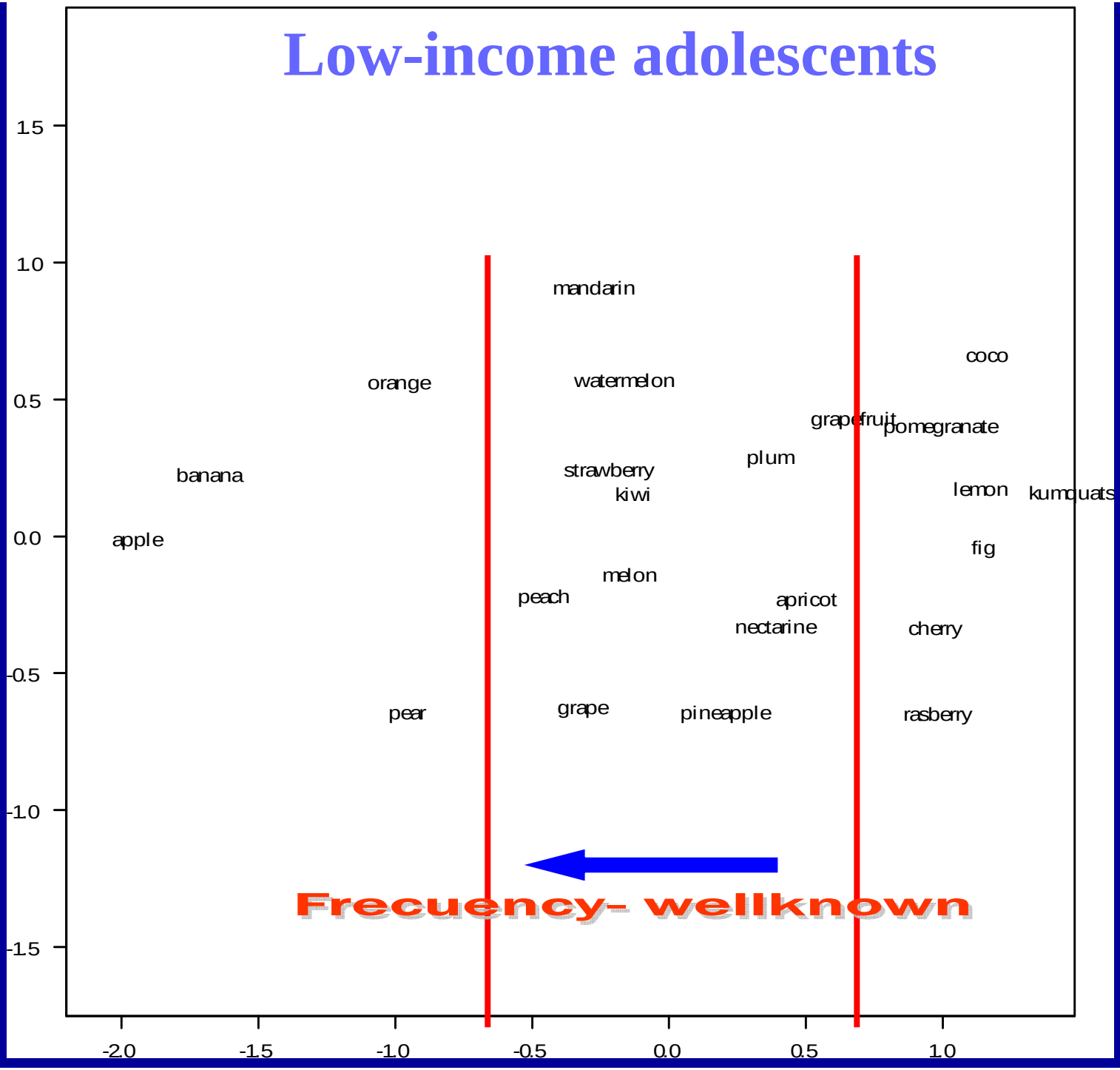
provided better interpretation

pineapple	0					
banana	0.51	0				
cherry	0.34	0.51	0			
plum	0.36	0.49	0.3	0		
coco	0.3	0.55	0.31	0.35	0	
peach	0.38	0.32	0.39	0.31	0.43	0
apricot	0.36	0.5	0.32	0.31	0.27	0.3
strawberry	0.39	0.39	0.32	0.39	0.39	0.31
rasberry	0.27	0.52	0.26	0.34	0.31	0.38
fig	0.34	0.52	0.3	0.24	0.28	0.39
kiwi	0.36	0.38	0.38	0.35	0.41	0.33
lemon	0.32	0.56	0.28	0.34	0.33	0.4
apple	0.58	0.18	0.61	0.53	0.62	0.37
mandarin	0.38	0.37	0.35	0.34	0.36	0.33
melon	0.37	0.34	0.36	0.34	0.34	0.26
mulberry	0.34	0.51	0.22	0.31	0.29	0.39
orange	0.42	0.33	0.44	0.39	0.47	0.29
nectarine	0.32	0.4	0.33	0.31	0.29	0.24

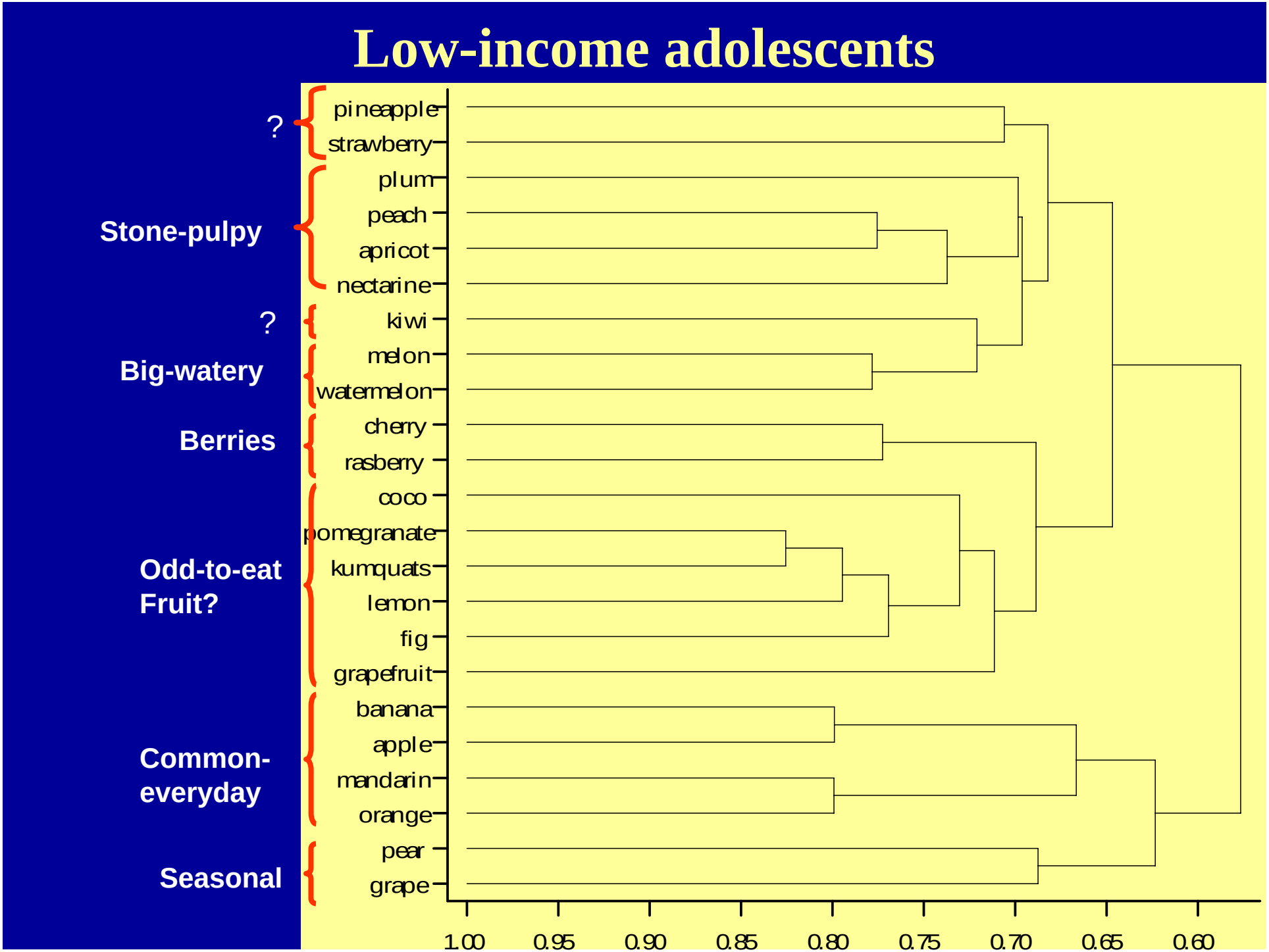
Multidimensional scaling

- ***Including fruits mentioned by > 10% consumers***
  - Stress= 0.19
- ***Including fruits mentioned by > 25% consumers***
  - Stress= 0.15
  - Limit of acceptability (Borgatti, 1996)

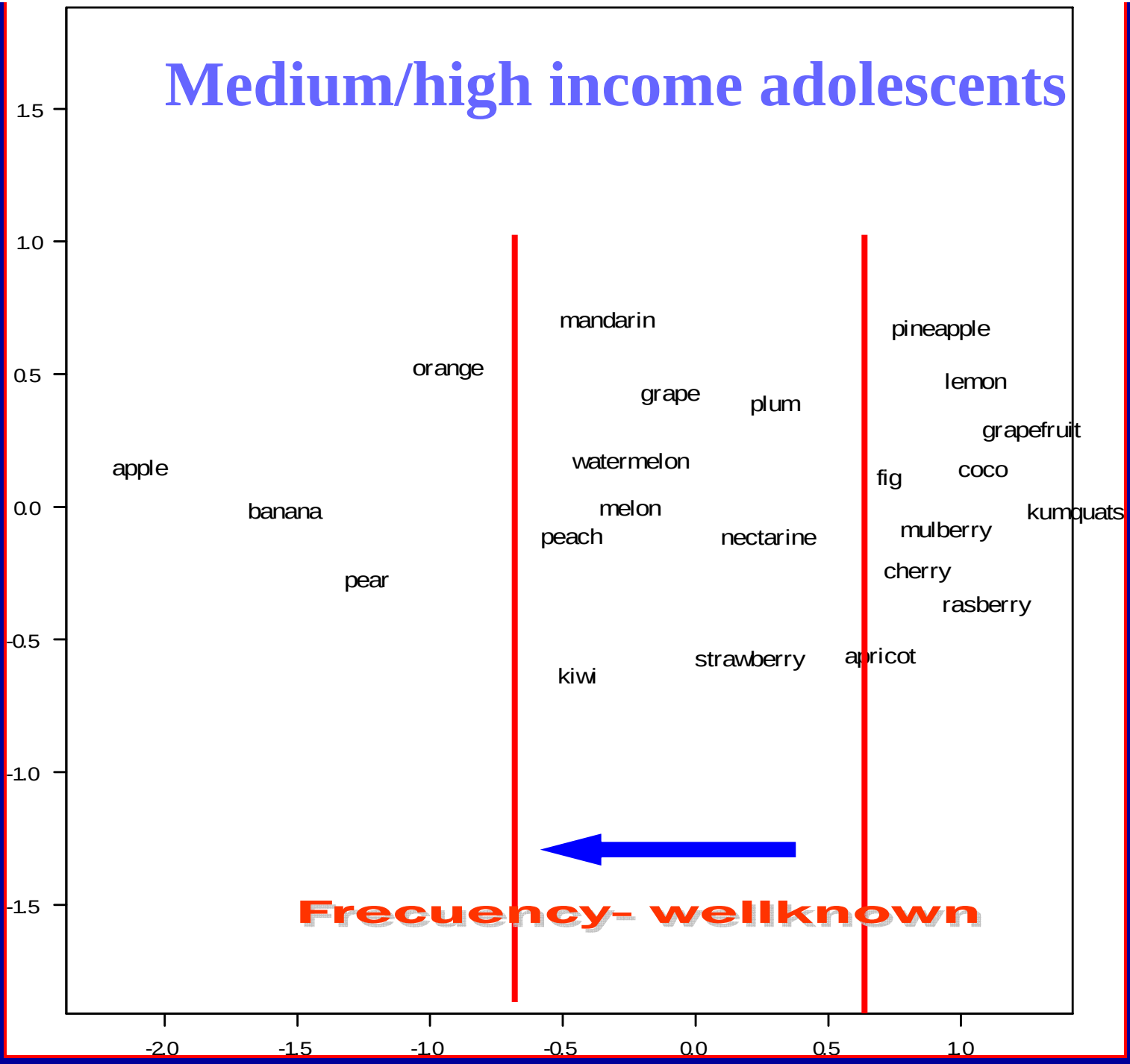
Low-income adolescents



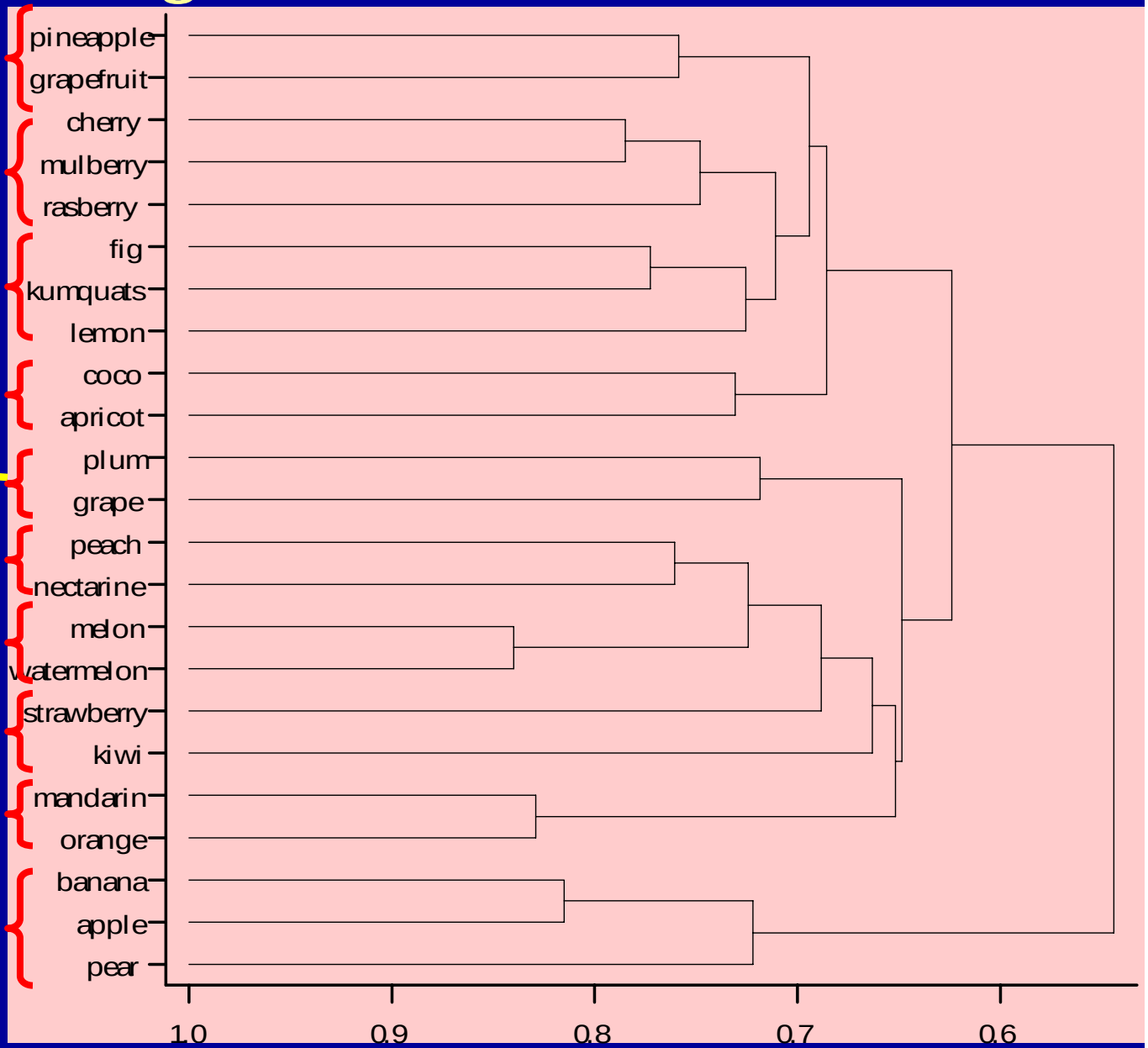
Low-income adolescents



Medium/high income adolescents



Middle/high income adolescents



?

Berries

Odd-to-eat Fruit?

?

In Argentina grapes are so big they look like plums

Same- family

Big-watery

?

Common citrus

Common-everyday

Conclusions

- ***Summary results:***
  - ✓ Differences between populations in number of items listed
  - ✓ Core members of a category: listed by most respondents or items that were first mentioned
- ***MDS and Cluster Analysis:***
  - ✓ Show up associations between members of a category

Free-listing is a simple and valuable tool

Thank you very much!