Consumer acceptability: positioning a product for maximum volume or maximum liking in a niche

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FMMG

NRI expertise
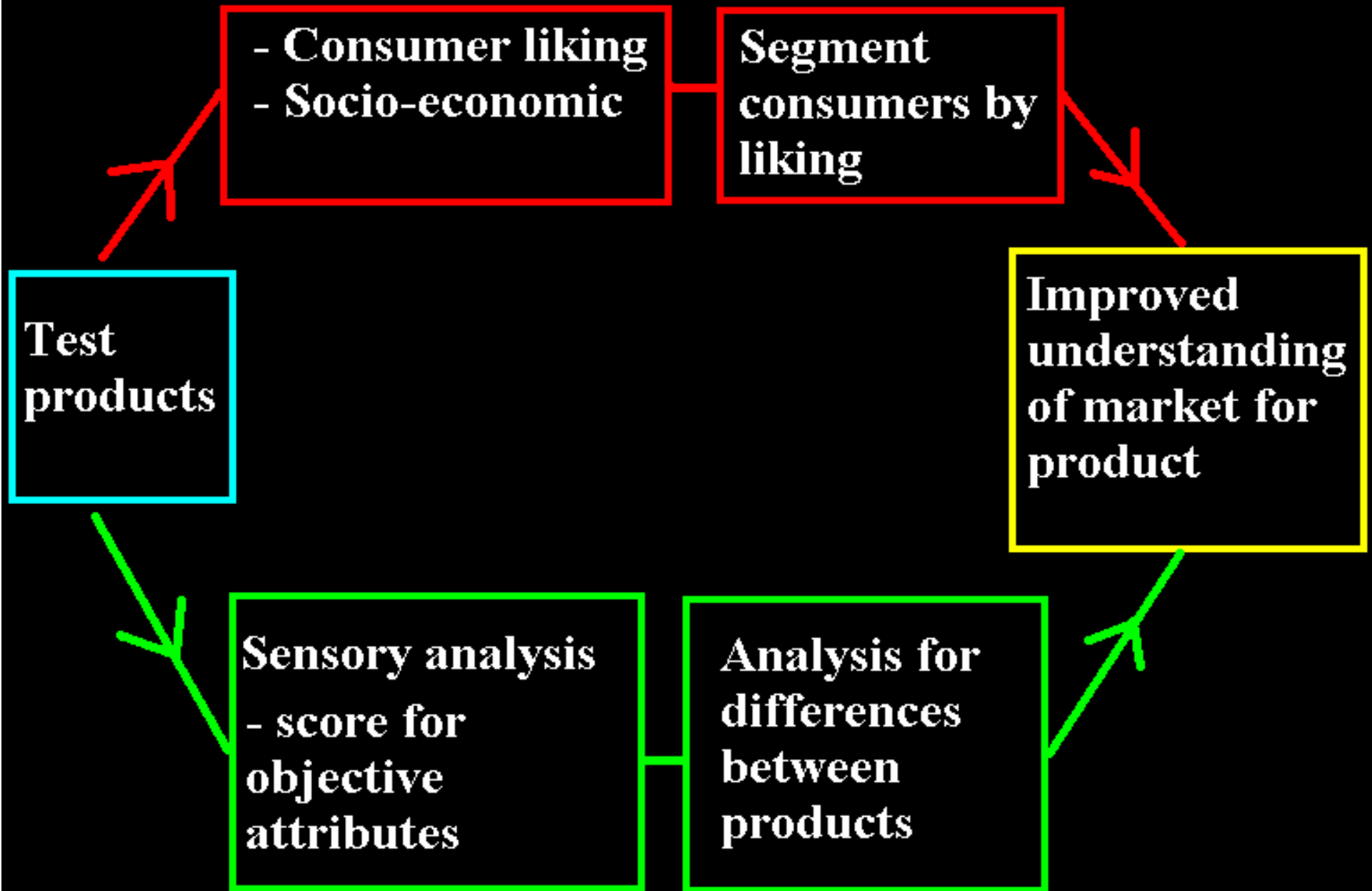
Sensory and consumer testing in:

UK, Malawi, Ghana, Tanzania, Nigeria, and Zimbabwe

Many products & commodities
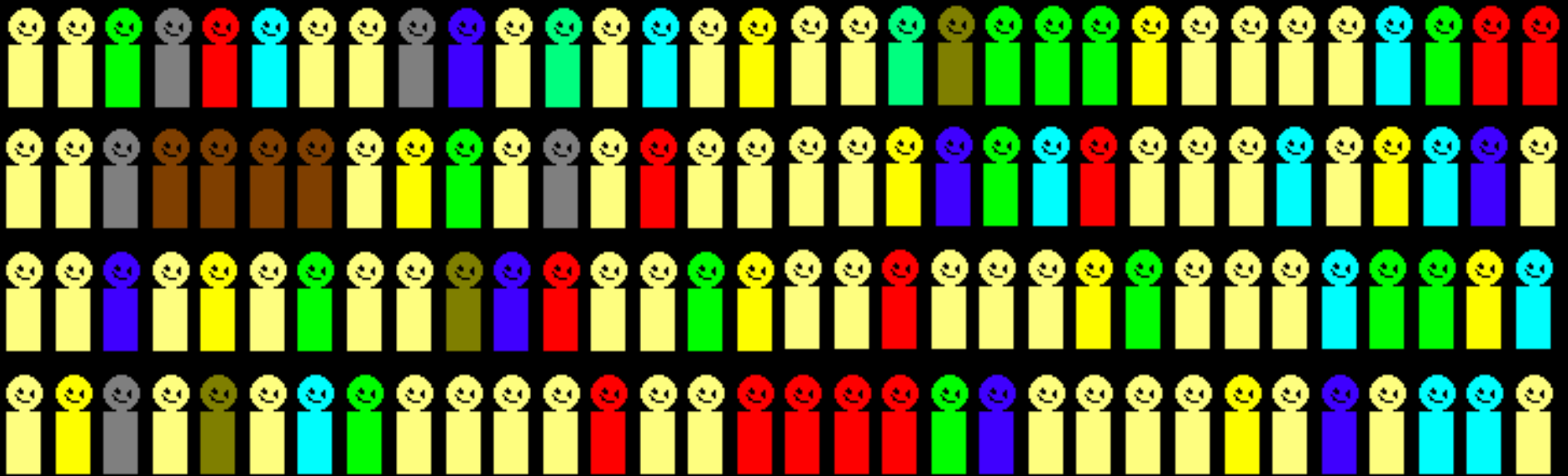
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applications

- Consumer acceptability

- Product development

- Plant breeding

- Market orientation - reaching majority and niche consumers

- Important in helping development projects to reach the poor.

Experimental approach

Consumer testing

Consumer liking
Demographic
Socio-economic interview

Data analysis

Consumer results

- Cluster analysis

- ANOVA

- Internal perception mapping

Sensory profiling

Trained panellists test product under controlled conditions (random coding, lighting, temperature etc)

Trained panellists

Data analysis (cont)

Sensory results

- ANOVA

- Perception maps (principal component analysis)

Application: Liking of fufu in Nigeria

- Fermented cassava product traditionally sold as a wet paste but is highly perishable
- CPHP project developed a dried product with improved shelf life and easier to market.
- Little information on consumer liking

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Fufu samples tested

- Traditional wet
- Modified wet - grated roots and used less water
- Dried traditional
- Dried modified
- Two commercial dried samples (Ava & Olu-Olu)

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Location of fufu consumer testing

- 300 consumers interviewed
- 100 each at Abeokuta, Ibadan and Lagos

Results: Consumer profiles

- <u>Gender</u> - 63% male, 37% female;

- <u>Age</u> - 49% 20 to 29 yrs, 27% 30 to 39 yrs, 17% 40 to 49 yrs;

- <u>Education</u> - 82% had secondary or above education;

- <u>Ethnic group</u> - Yoruba (86%), Igbo (8%) and Hausa (6%).

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Consumer profiles (continued)

- Eating - 13 to 35% ate fufu every day

- Place of eating - 48% to 65% (home), 10% to 23% (street food), 5% to 20% (work).

- Method of purchase differed - Abeokuta (92% cooked), Lagos (52% cooked, 29% wet), Ibadan(71% flour, 13% wet).
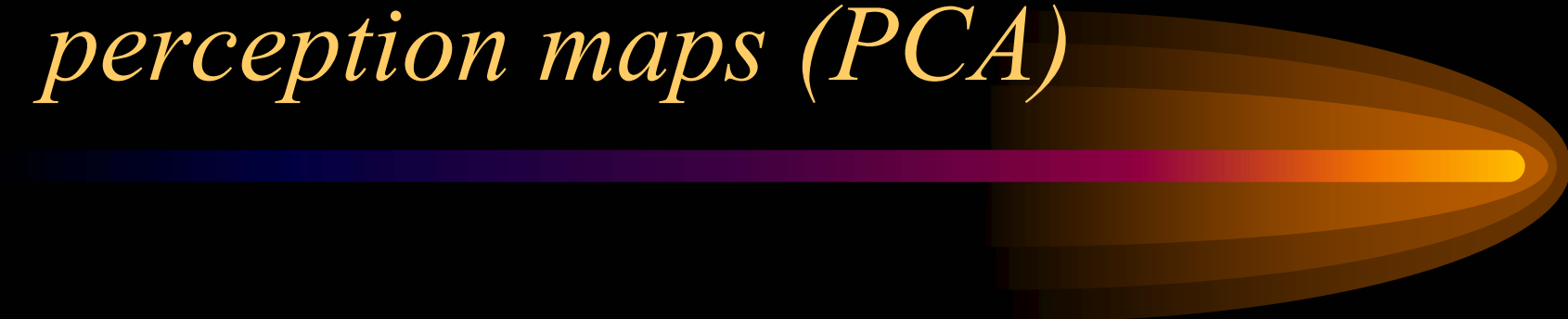
Consumer liking

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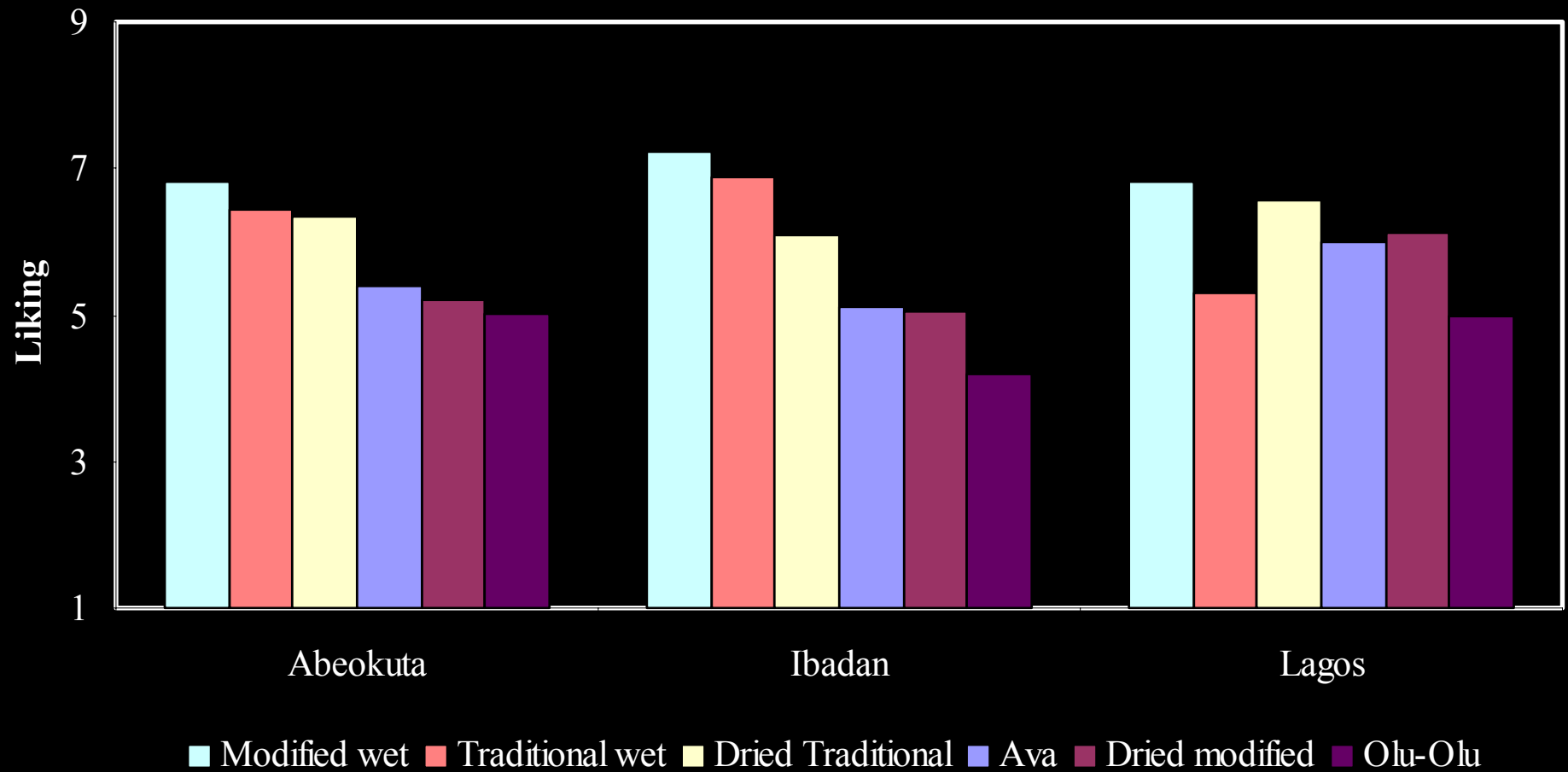
Consumer liking analysis

- Gender - female (5.6) liking significantly less than males (6.0)

- Age - liking increased with age from 5.7 to 6.2

- Ethnic group, how often they ate fufu or they type they usually purchased had no effect on liking

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A digression to illustrate perception maps (PCA)

PCA is a multivariate technique

•Very useful for summarising complex data

•Makes the data easier to understand

•Is a mathematical solution and does not require an underlying statistical model

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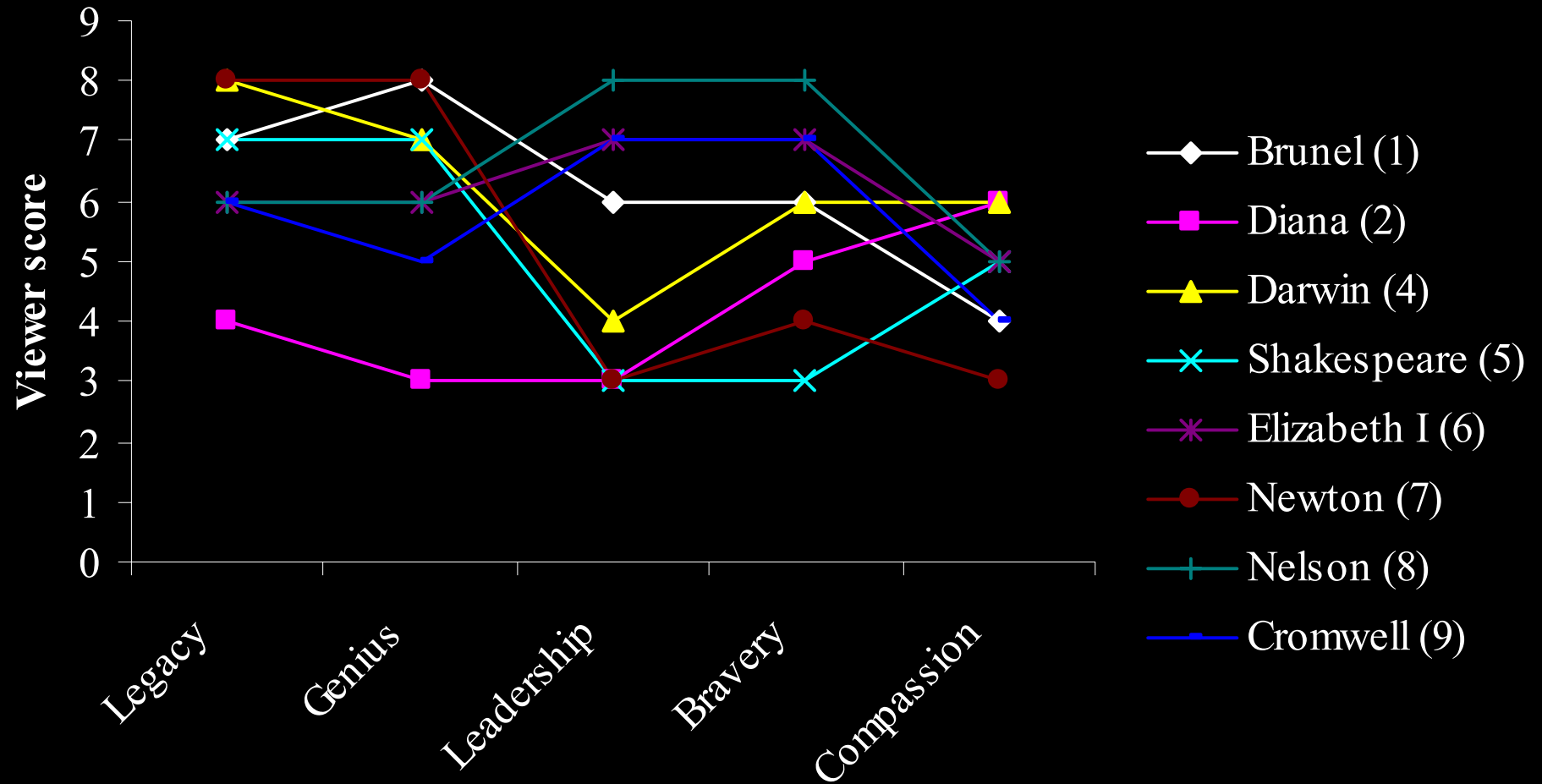# *Example using perception of Great Britons*

Great Briton	Viewer scores				
	Legacy	Genius	Leadership	Bravery	Compassion
Brunel (1)	7	8	6	6	4
Diana (2)	4	3	3	5	6
Darwin (4)	8	7	4	6	6
Shakespeare (5)	7	7	3	3	5
Elizabeth I (6)	6	6	7	7	5
Newton (7)	8	8	3	4	3
Nelson (8)	6	6	8	8	5
Cromwell (9)	6	5	7	7	4

Great Britons

- It is difficult to see trends just by looking at the numbers in the table
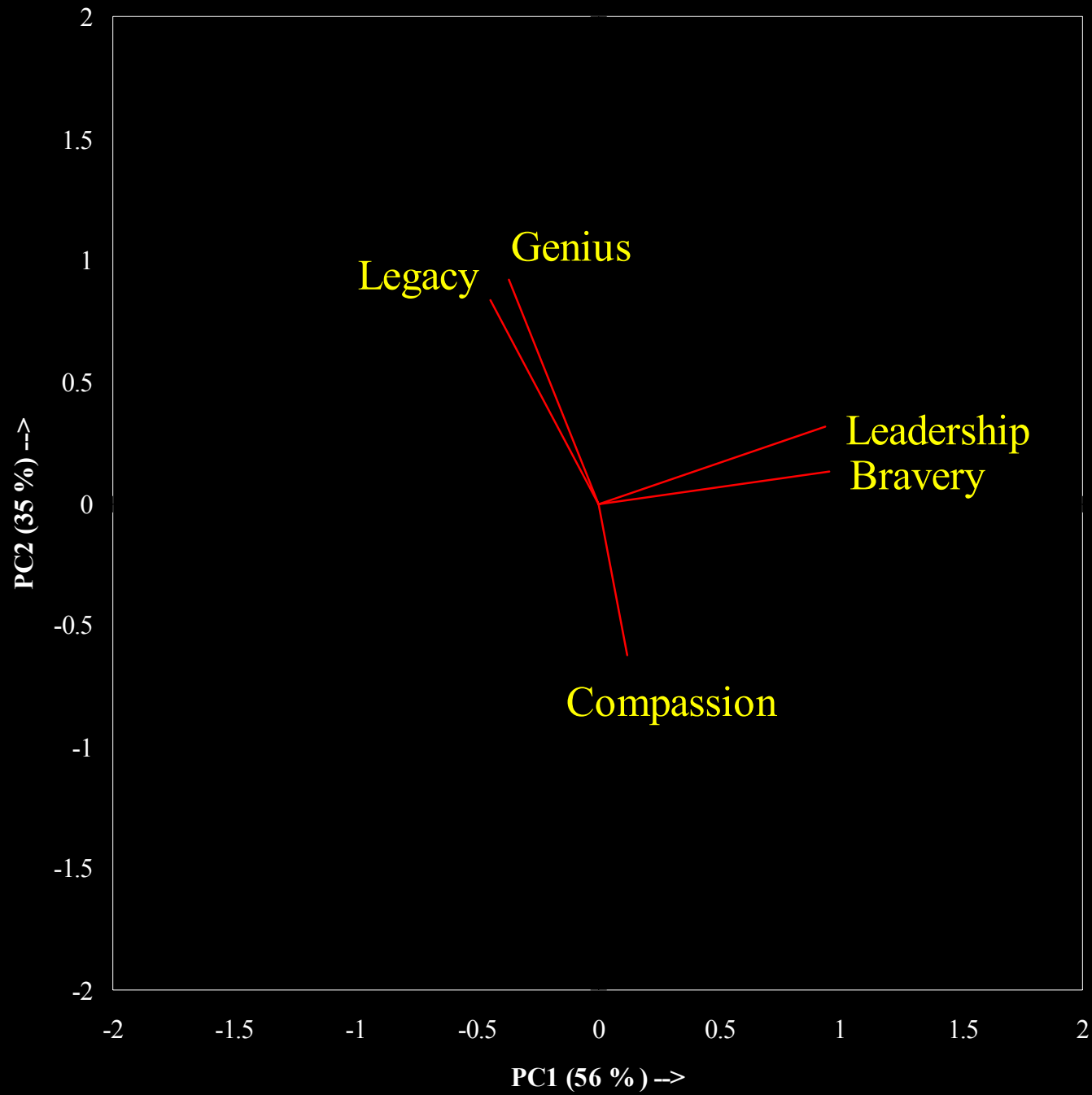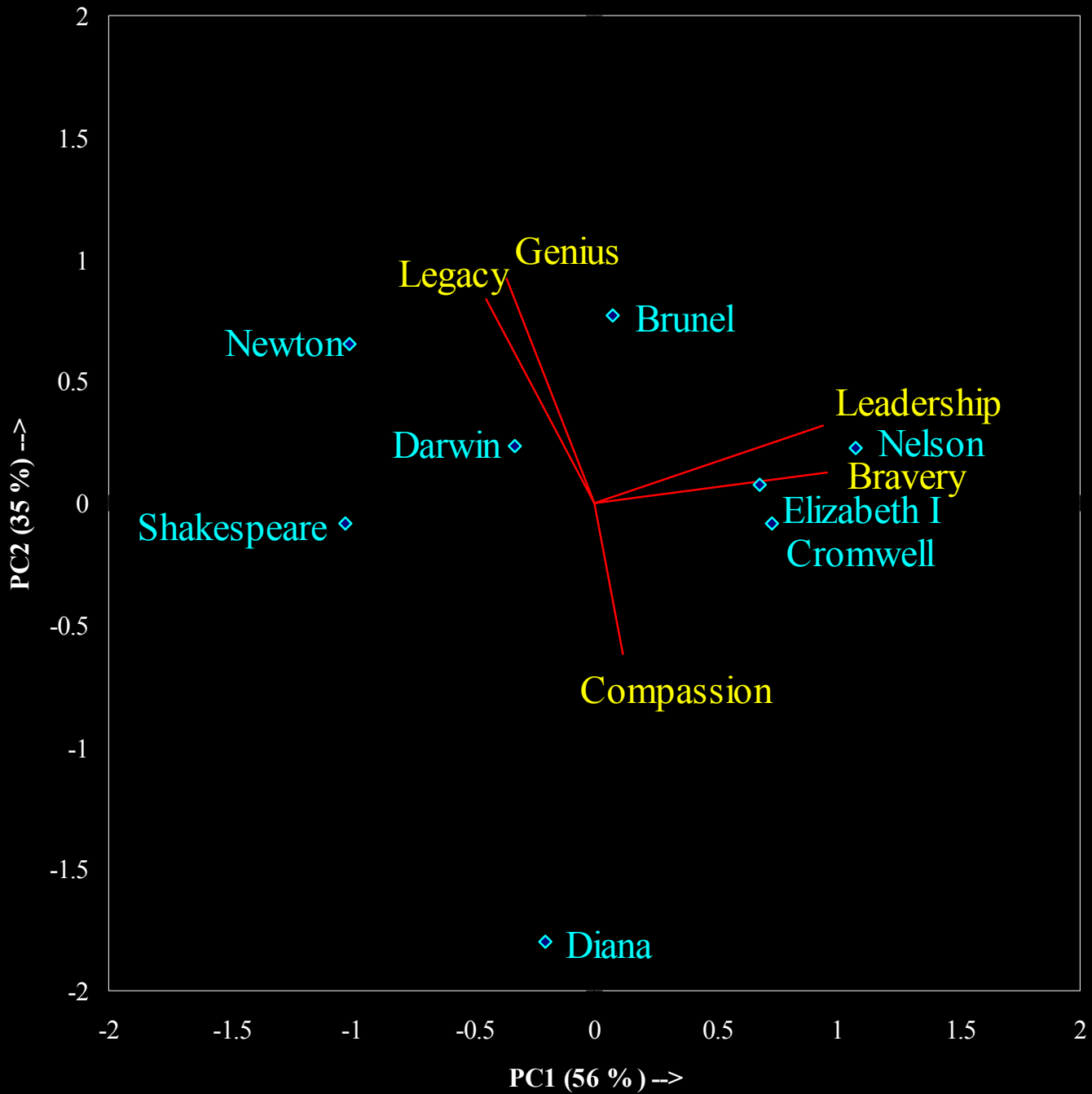- Perhaps we can try plotting a line chart?

Great Britons

- The line chart is not much clear either.
- This is where PCA is useful.

PCA of perception of Great Britons

- We can see that the perception is three dimensional, i.e.,
- legacy/genius
- bravery/leadership
- compassion

Great Britons - PCA

- We can now include the Great Britons and see how they relate.

- Elizabeth I, Nelson and Cromwell are perceived as brave and as leaders

- Brunel, Newton and Darwin are seen as geniuses and will leave a legacy

- Diana is compassionate
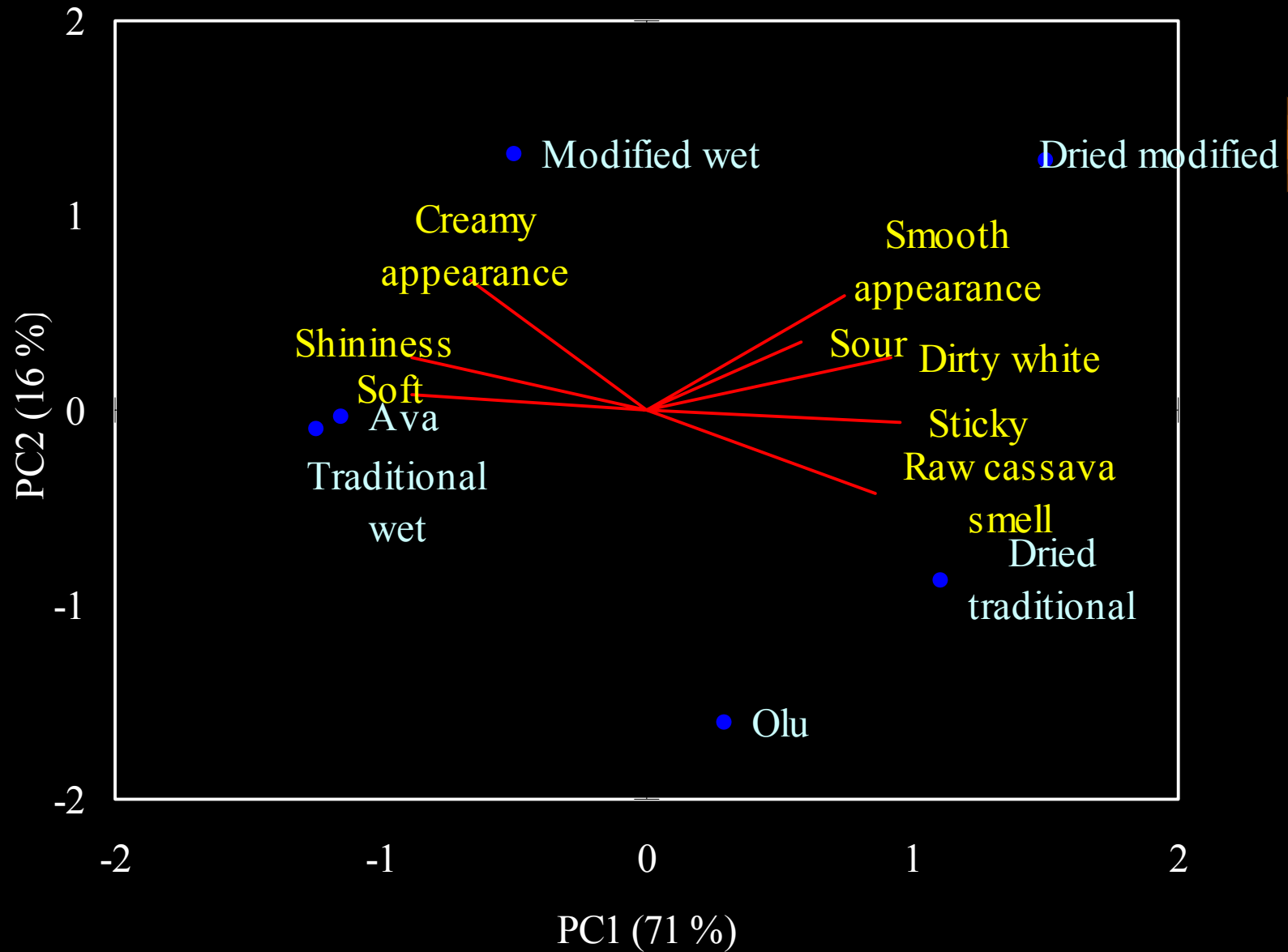
- Shakespeare is not brave or a leader

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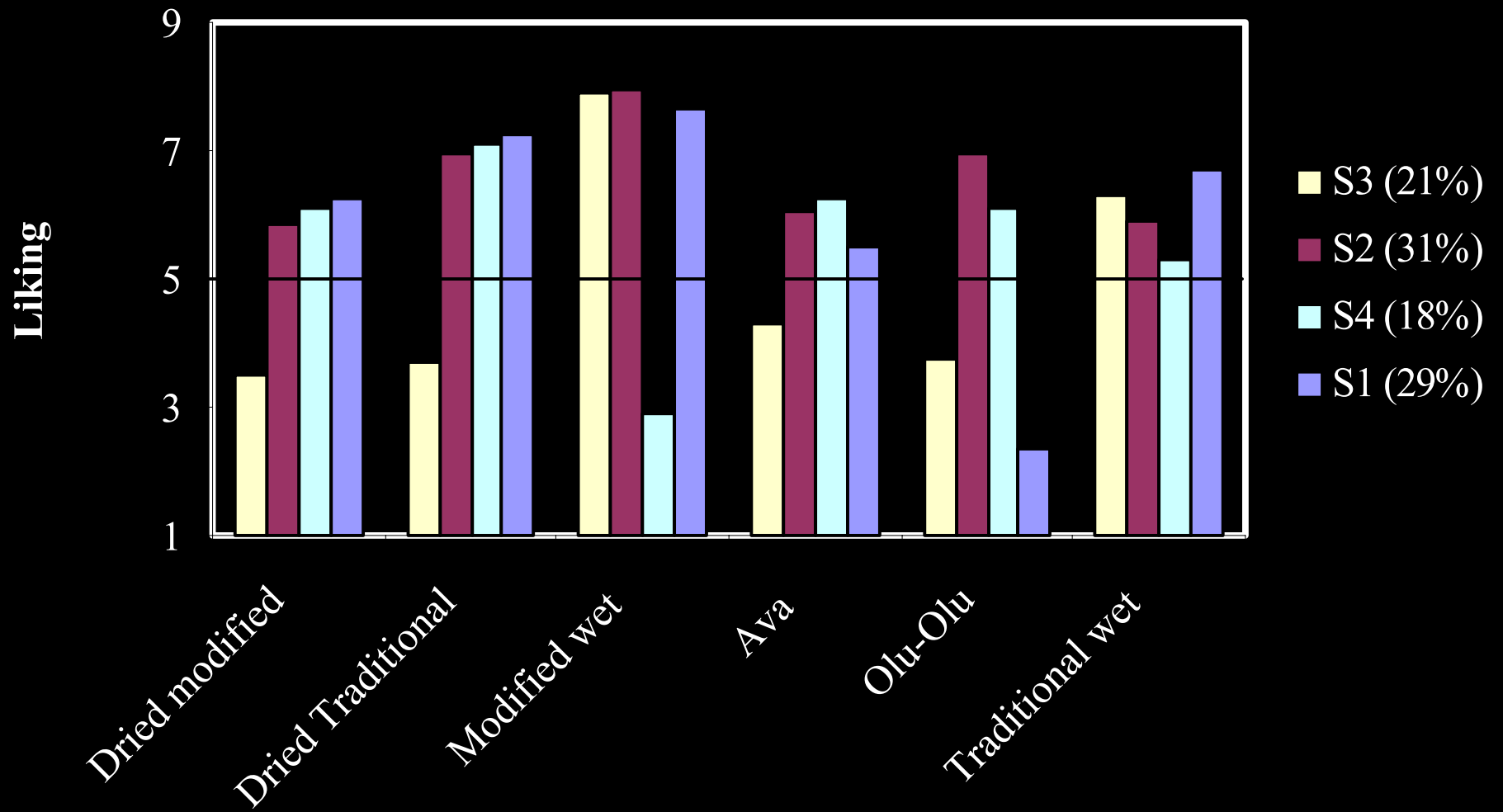*And now, back to the main plot!*

Sensory (expert) panel

How experts perceive fufu

- Sensory terms is two dimensional
- Fufu samples differ

Segmentation of consumers

- Used cluster analysis to separate consumers into 4 segments who had similar liking
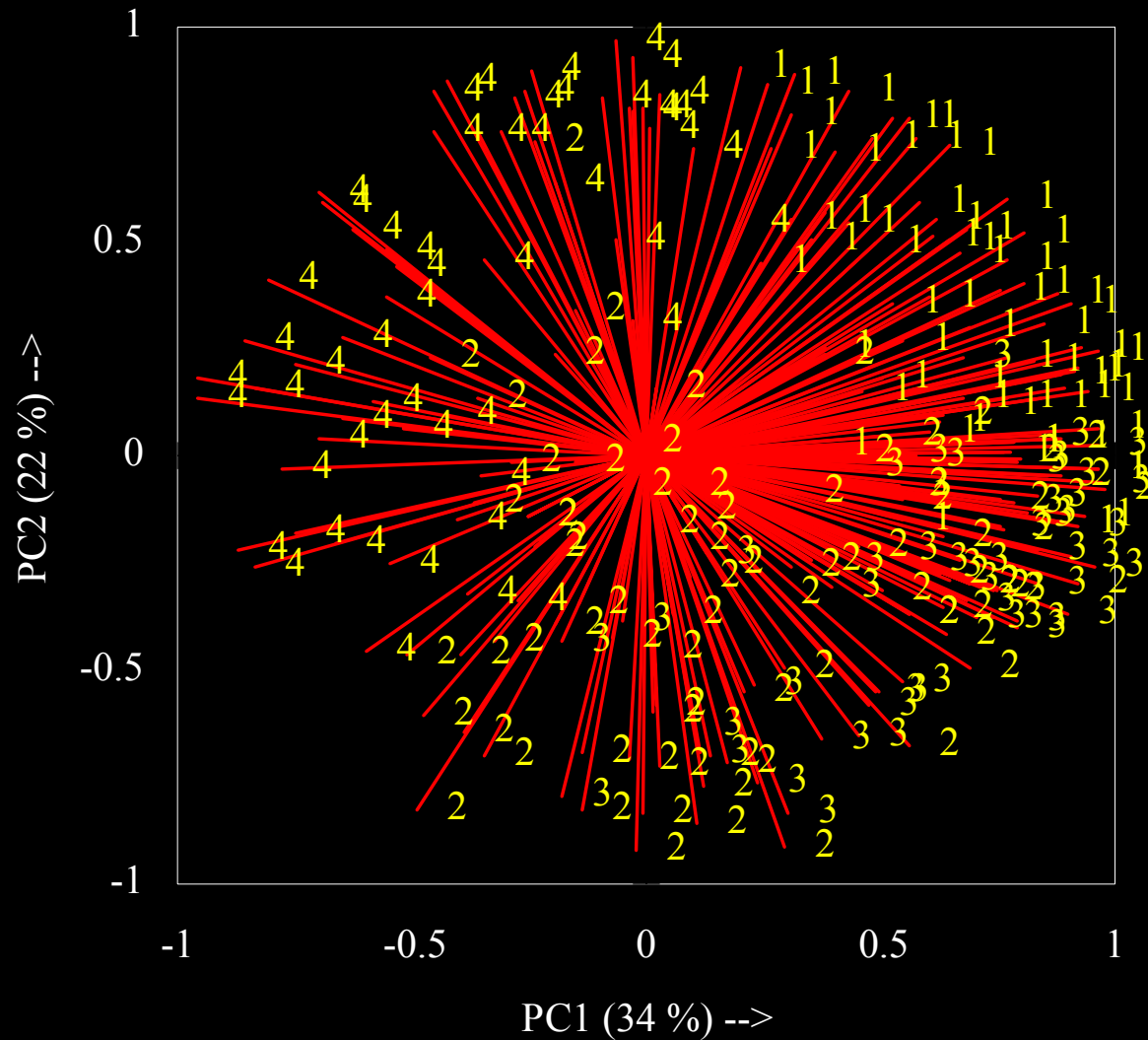- The liking of the segments significantly differed

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Segmentation of consumer

- Segments are significantly different
- Have different likings
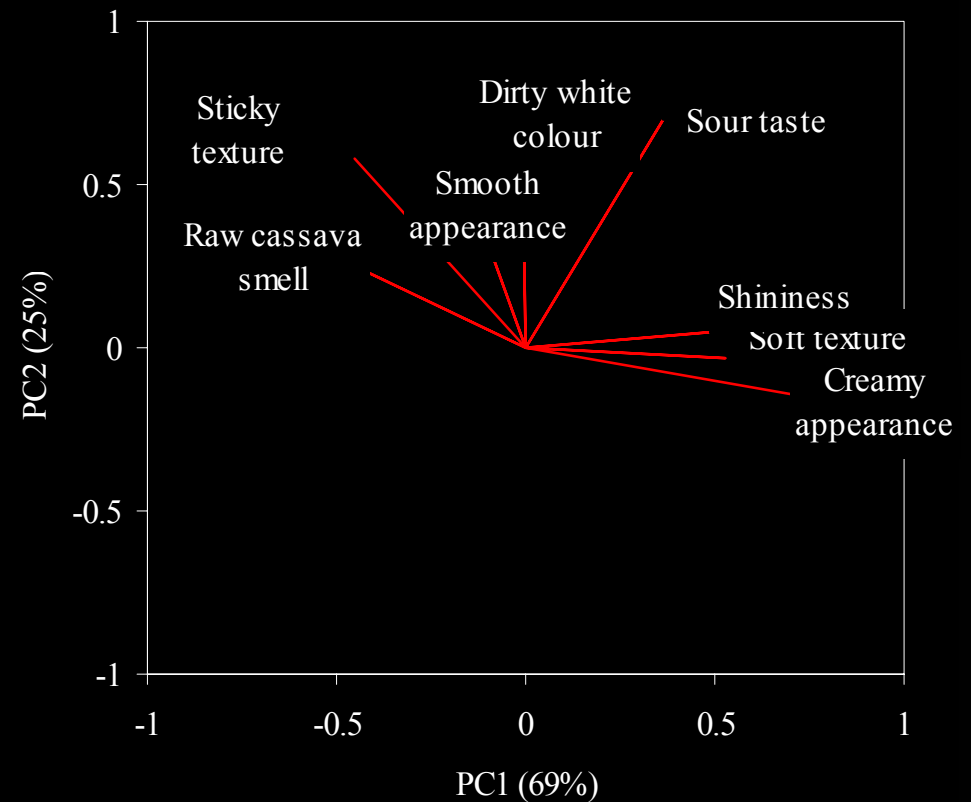
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Individual consumer preferences
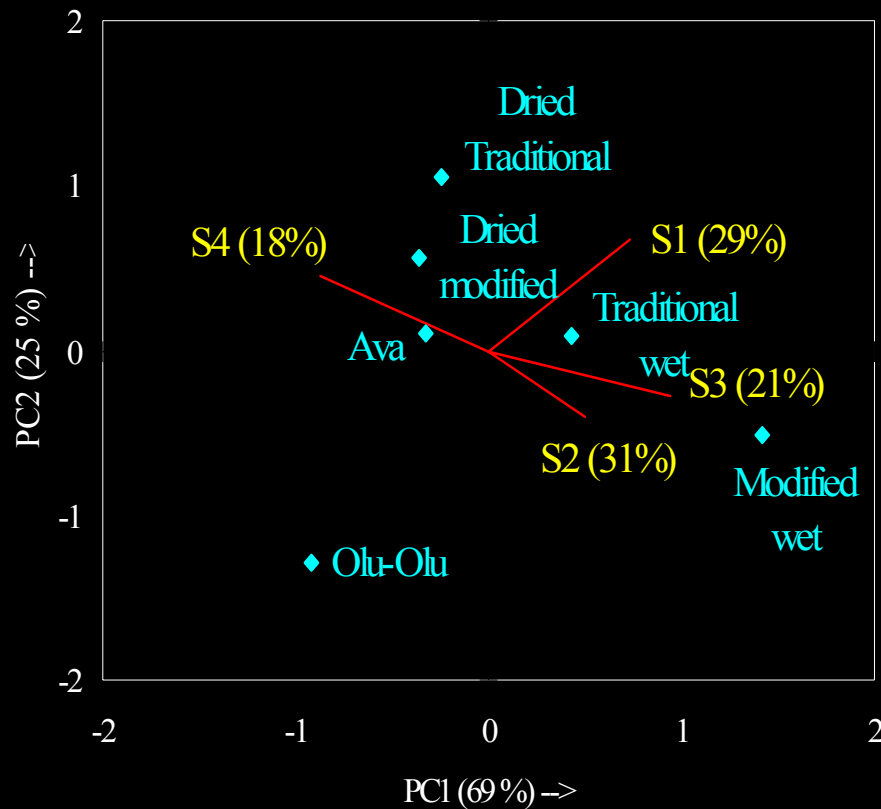

Numbers refer to consumer segment

PCA of individual likings

- Each line represents an individual consumer
- The number donates the segment that that consumer is categorised as

Internal perception mapping

Differences between consumer segments

- <u>S1 (29%)</u> - male (68%), civil servant (49%), older (33), from Lagos (40%)
- <u>S2 (31%)</u> - male (74%), civil servant (49%), older (33), from Lagos (45%)
- <u>S3 (21%)</u> - female (69%), student (43%), younger (29), from Abeokuta (36%) and Ibadan (38%) and purchase in the flour form
- <u>S4 (18%)</u> - male (69%), civil servant (40%) and student (40%), older (33) and from Abeokuta (39%) and Lagos (42%) and purchase more in the cooked form

No difference with ethnic group, education, how often they ate fufu, or other food types purchased.

Summary

- Consumers liked the modified wet product but disliked the commercial

- The dried samples were also preferred

- Consumers were divided into four segments

- All segments liked the traditional wet product

- One niche group (21% and female) did not the new dried product who were ones already consuming flour. Why?

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Conclusions

- New approach is useful and uses the 'voice of the consumer'. Is an advance on traditional sensory methods.

- New product can penetrate market but existing buyers (female) of flour may require more persuading

- Why do segments differ? Could follow up with focus group interviews

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- Technique shows competitive position of selected products and strengths and weaknesses
- Help with development of new and improved products