EL4880F – Final Paper: Kopi Project

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AY2023/24 Semester 2

1. Introduction

In Singapore, ordering drinks often involves the use of Singlish, a unique blend of English and elements of local languages including Hokkien, Mandarin, and Malay. It is widely spoken in Singapore and typically used in daily communication, including when ordering *kopi* at a local drink stall. The linguistic fusion is evident in drink orders such as *kopi c siew dai*, where *kopi* means coffee in Malay, *siew dai* means less sweet in Hokkien, and c refers to *Carnation*, the brand of evaporated milk used.

As these modifiers behave like adjectives by modifying the noun *kopi*, this paper applies Scontras et al.'s subjectivity approach to account for the modifier sequences in *kopi* orders. Scontras et al. (2017) propose that less subjective adjectives tend to be closer to the noun they modify. With this in mind, this paper explores whether the theory of subjectivity applies to *kopi* modifiers as well, investigating if less subjective modifiers appear closer to *kopi*.

The findings from this study reveal that while there is some correlation between modifier subjectivity and distance from the noun at the modifier level, it is inconclusive whether subjectivity can adequately account for the position of *kopi* modifiers at both the individual modifier and categorical level.

This study comprises three experiments – one to ascertain preferences in the sequencing and thereby position of modifiers, and two to measure the subjectivity of modifiers, each employing different methods. The second experiment directly measures the subjectivity of modifiers through an explicit rating task, while the third experiment employs an indirect method of measuring subjectivity through faultless disagreement.

2. Modifier Sequence
2.1 Methodology

To measure the preference in the sequence of modifiers used in kopi orders, six modifiers from four categories (milk, concentration, sugar, and temperature) were selected, as shown in Table 1. These were permuted to form 96 test items (4*3*2*1)(2*2) and distributed across four lists. Each list corresponded to one trial, and thus there were four trials in total. Each test item appeared in only one list, and each participant saw a total of 24 test items. A snapshot of the test items appearing in one list is seen in Figure 1.

Participants

Experiment 1 had 36 participants in total, with each list receiving eight to ten participants. Background information about each participant was collected, regarding how frequently they ordered *kopi*, how long they have been living in Singapore, and whether English is their first language.

Modifier	Meaning	Category

O	No milk	Milk
C	Evaporated milk	
Gau	Strong	Concentration
Kosong	No sugar	Sugar
Siew dai	Less sweet	
Peng	Cold ("ice")	Temperature

TABLE 1. Summary of modifiers used + their meaning + categories

list	label	mod1	mod2	mod3	mod4
L1	kopi o gau siew dai peng	O	Gau	Siew Dai	peng
L1	kopi o gau peng siew dai	O	Gau	peng	Siew Dai
L1	kopi o peng siew dai gau	O	peng	Siew Dai	Gau
L1	kopi o peng gau siew dai	O	peng	Gau	Siew Dai
L1	kopi o siew dai gau peng	O	Siew Dai	Gau	peng
L1	kopi o siew dai peng gau	O	Siew Dai	peng	Gau
L1	kopi gau c peng kosong	Gau	C	peng	Kosong
L1	kopi gau c kosong peng	Gau	C	Kosong	peng
L1	kopi peng c gau kosong	peng	C	Gau	Kosong
L1	kopi peng c kosong gau	peng	C	Kosong	Gau
L1	kopi kosong c peng gau	Kosong	C	peng	Gau
L1	kopi kosong c gau peng	Kosong	C	Gau	peng
L1	kopi siew dai peng c gau	Siew Dai	peng	C	Gau
L1	kopi peng siew dai c gau	peng	Siew Dai	C	Gau
L1	kopi siew dai gau c peng	Siew Dai	Gau	C	peng
L1	kopi gau siew dai c peng	Gau	Siew Dai	C	peng
L1	kopi gau peng c siew dai	Gau	peng	C	Siew Dai
L1	kopi peng gau c siew dai	peng	Gau	C	Siew Dai
L1	kopi peng kosong gau o	peng	Kosong	Gau	O
L1	kopi kosong peng gau o	Kosong	peng	Gau	O
L1	kopi gau kosong peng o	Gau	Kosong	peng	O
L1	kopi kosong gau peng o	Kosong	Gau	peng	O
L1	kopi peng gau kosong o	peng	Gau	Kosong	O
L1	kopi gau peng kosong o	Gau	peng	Kosong	O

FIGURE 1. Test items (n=24) appearing in one trial

Procedure – Survey

Participants were instructed to rate the acceptability of each phrase based on how natural it sounded to them. Each question consisted of two *kopi* sequences, for instance where '*kopi o gau siew dai peng*' and '*kopi o gau peng siew dai*' were shown adjacent to each other.

Participants rated the acceptability of each sentence on a 5-point scale, where 1 is

'completely unacceptable' where the phrase sounds completely wrong, 5 is 'completely acceptable' where nothing sounds wrong i.e. it sounds 'right', while 3 is 'neutral' where the phrase may sound a little strange but is still understandable and has nothing very 'wrong' about it. Participants were told there is no right or wrong answer, and to give their responses based on their first instincts.

2.2 Results

For ease of reference, the first letter of each category is used to refer to that category, i.e. M represents the milk category, C for concentration, S for sugar, and T for temperature.

Looking at the top 25 highest rated sequences revealed that modifiers from the milk category *c* and *o* tended to appear in the first position next to *kopi*, as seen in Figure 2. Sequences with the temperature modifier *peng* appearing in the fourth position, furthest from *kopi*, were rated higher than when *peng* was found in the other positions. Higher rated sequences tended to have modifiers from the concentration or sugar category in either the second or third position. On the other hand, the least preferred sequences had modifiers from either the temperature, sugar, or concentration categories appearing in the first position, as seen in Figure 3. Notably, none of the lowest 25 rated sequences contained modifiers from the milk category in the first position.

	list	item	label	rating	mod1	mod2	mod3	mod4
1	L4	Q1_1	kopi c gau kosong peng	4.444444444	C	Gau	Kosong	peng
2	L4	Q3_1	kopi c kosong gau peng	4.333333333	C	Kosong	Gau	peng
3	L1	Q1_1	kopi o gau siew dai peng	4.222222	O	Gau	Siew Dai	peng
4	L3	Q1_1	kopi c gau siew dai peng	4	C	Gau	Siew Dai	peng
5	L3	Q2_2	kopi c peng gau siew dai	4	C	peng	Gau	Siew Dai
6	L2	Q1_1	kopi o gau kosong peng	4	O	Gau	Kosong	peng
7	L3	Q3_1	kopi c siew dai gau peng	3.888889	C	Siew Dai	Gau	peng
8	L2	Q3_1	kopi o kosong gau peng	3.8	O	Kosong	Gau	peng
9	L1	Q2_2	kopi o peng gau siew dai	3.555556	O	peng	Gau	Siew Dai
10	L4	Q3_2	kopi c kosong peng gau	3.444444444	C	Kosong	peng	Gau
11	L3	Q1_2	kopi c gau peng siew dai	3.444444	C	Gau	peng	Siew Dai
12	L4	Q2_2	kopi c peng gau kosong	3.333333333	C	peng	Gau	Kosong
13	L1	Q3_1	kopi o siew dai gau peng	3.333333	O	Siew Dai	Gau	peng
14	L4	Q12_1	kopi peng gau siew dai o	3.222222222	peng	Gau	Siew Dai	O
15	L3	Q3_2	kopi c siew dai peng gau	3.222222	C	Siew Dai	peng	Gau
16	L2	Q3_2	kopi o kosong peng gau	3.2	O	Kosong	peng	Gau
17	L2	Q4_2	kopi gau o siew dai peng	3.2	Gau	O	Siew Dai	peng
18	L4	Q1_2	kopi c gau peng kosong	3	C	Gau	peng	Kosong
19	L3	Q2_1	kopi c peng siew dai gau	3	C	peng	Siew Dai	Gau
20	L2	Q12_1	kopi peng gau siew dai c	3	peng	Gau	Siew Dai	C
21	L2	Q2_1	kopi o peng kosong gau	3	O	peng	Kosong	Gau
22	L2	Q7_1	kopi kosong peng c gau	3	Kosong	peng	C	Gau
23	L2	Q7_2	kopi peng kosong c gau	3	peng	Kosong	C	Gau
24	L4	Q5_1	kopi peng c gau siew dai	2.888888889	peng	C	Gau	Siew Dai
25	L2	Q1_2	kopi o gau peng kosong	2.777778	O	Gau	peng	Kosong

FIGURE 2. Snapshot of top 25 highest rated sequences

72	L1	Q7_2	kopi peng siew dai c gau	2	peng	Siew Dai	C	Gau
73	L1	Q9_2	kopi peng gau c siew dai	2	peng	Gau	C	Siew Dai
74	L3	Q8_1	kopi siew dai gau o peng	1.888889	Siew Dai	Gau	O	peng
75	L1	Q6_2	kopi kosong c gau peng	1.888889	Kosong	C	Gau	peng
76	L4	Q11_1	kopi gau siew dai peng o	1.888888889	Gau	Siew Dai	peng	O
77	L4	Q6_1	kopi siew dai c peng gau	1.888888889	Siew Dai	C	peng	Gau
78	L4	Q8_1	kopi kosong gau o peng	1.888888889	Kosong	Gau	O	peng
79	L2	Q6_1	kopi siew dai o peng gau	1.8	Siew Dai	O	peng	Gau
80	L2	Q9_1	kopi gau peng c kosong	1.8	Gau	peng	C	Kosong
81	L1	Q12_2	kopi gau peng kosong o	1.777778	Gau	peng	Kosong	O
82	L1	Q5_1	kopi peng c gau kosong	1.777778	peng	C	Gau	Kosong
83	L1	Q8_1	kopi siew dai gau c peng	1.777778	Siew Dai	Gau	C	peng
84	L1	Q9_1	kopi gau peng c siew dai	1.777778	Gau	peng	C	Siew Dai
85	L1	Q5_2	kopi peng c kosong gau	1.666667	peng	C	Kosong	Gau
86	L1	Q7_1	kopi siew dai peng c gau	1.666667	Siew Dai	peng	C	Gau
87	L1	Q8_2	kopi gau siew dai c peng	1.666667	Gau	Siew Dai	C	peng
88	L4	Q7_1	kopi kosong peng o gau	1.666666667	Kosong	peng	O	Gau
89	L4	Q7_2	kopi peng kosong o gau	1.666666667	peng	Kosong	O	Gau
90	L4	Q11_2	kopi siew dai gau peng o	1.625	Siew Dai	Gau	peng	O
91	L1	Q10_2	kopi kosong peng gau o	1.555556	Kosong	peng	Gau	O
92	L1	Q11_1	kopi gau kosong peng o	1.555556	Gau	Kosong	peng	O
93	L1	Q11_2	kopi kosong gau peng o	1.555556	Kosong	Gau	peng	O
94	L1	Q12_1	kopi peng gau kosong o	1.555556	peng	Gau	Kosong	O
95	L1	Q6_1	kopi kosong c peng gau	1.555556	Kosong	C	peng	Gau
96	L1	Q10_1	kopi peng kosong gau o	1.444444	peng	Kosong	Gau	O

FIGURE 3. Snapshot of bottom 25 lowest rated sequences

Next, the averages ratings by category were compared across all four lists. This means that the sequences *kopi c gau kosong peng*, *kopi c gau siew dai peng*, *kopi o gau kosong peng*, and *kopi o gau siew dai peng* were treated as one data point under the modifier sequence MCST.

For ease of comparison, the ratings for the top five highest and bottom five lowest rated sequences by category are found in Table 2. Milk modifiers were found most frequently in the first position adjacent to the noun *kopi*, while the worst rated sequences had modifiers from either the sugar or concentration category in the first position.

Sequence	Mean rating	Sequence	Mean rating
M C S T	4.17	S C M T	2.01
M S C T	3.84	C T M S	1.95
M T C S	3.28	C S T M	1.94
M S T C	3.08	S C T M	1.82
M C T S	2.97	S M T C	1.81

TABLE 2. Table 2. Top five highest and bottom five lowest rated sequences by category

There was an alignment between the top rated sequence by category and by modifier. The top rated sequence by modifier is *kopi c gau kosong peng* (rating = 4.44), which corresponds to the top rated sequence by category, MCST (rating = 4.17). Conversely, the lowest rated sequence by modifier was *kopi peng kosong gau o* (rating = 1.44) with the sequence TSCM, which did not correspond to the lowest rated sequence by category, SMTC. A comparison of the five lowest rated sequences by category and by modifier permutations also revealed a lack of consensus about the least preferred sequences, in which modifiers from the sugar, concentration, or temperature category were found in the first positions.

Next, the average rating of sequences within each individual list was investigated. Notably, the top rated sequence MCST (rating = 4.17) was the only sequence that received an average rating of 4 and above across all four lists, indicating a consensus in its acceptability, as shown in Table 3 below. However, the next two highest rated sequences, MSCT (rating = 3.84) and MTCS (rating = 3.28), showed less consensus across the lists.

Sequence	List 1	List 2	List 3	List 4	Average
MCST	4.22	4	4	4.44	4.17
MSCT	3.33	3.8	3.89	4.33	3.84
MTCS	3.56	2.22	4	3.33	3.28

TABLE 3. Average ratings of top 3 highest rated sequences for all four lists

Further analysis of the MSCT sequence across lists revealed varying perceptions towards the sequence, with some rating the sequence closer to neutral (rating = 3) while others considered it closer to completely acceptable (rating = 5).

Similarly, the MTCS sequence showed greater deviation in its perceived acceptability across the lists. Notably for the sequence MTCS, the modifier *kosong* received lower ratings in lists 2 and 4 (rating = 2.22; 3.33) while *siew dai* received higher ratings in lists 1 and 3 (rating = 3.56; 4), indicating perceived differences in acceptability of modifiers *kosong* and *siew dai* within the sugar category.

To aid visualisation, a position score for each modifier was derived by averaging the position value across the top 25 highest rated sequences. Modifiers appearing in the first position were accorded a value of 1, second position a value of 2, third position a value of 3, and fourth position a value of 4. A smaller value indicated a position closer to the noun *kopi*. The position score is used as a proxy for determining the position tendency of each modifier.

As seen in Table 4 and Figure 4, modifiers most frequently found closer to *kopi* were from the milk category with *o* scoring 1.4 and *c* scoring 1.53. The position scores for the rest of the modifiers clustered together nearer a score of 3, with *siew dai* scoring the highest at 3.08, indicating that it tended to appear furthest from *kopi* than the other modifiers. Notably, *siew dai* made no appearance in the first position, while *gau* and *kosong* each appeared once in the first position. *Peng* appeared most frequently in the fourth than in other positions.

Modifier	First position	Second position	Third position	Fourth position	Average position	Average position (category)
O	8	1	0	1	1.4	1.48
C	11	1	2	1	1.53	
Gau	1	9	8	7	2.84	2.84
Kosong	1	5	3	3	2.67	2.88
Siew dai	0	3	6	4	3.08	
Peng	4	6	6	9	2.8	2.8

TABLE 4. Position score for each modifier in top 25 preferred sequences
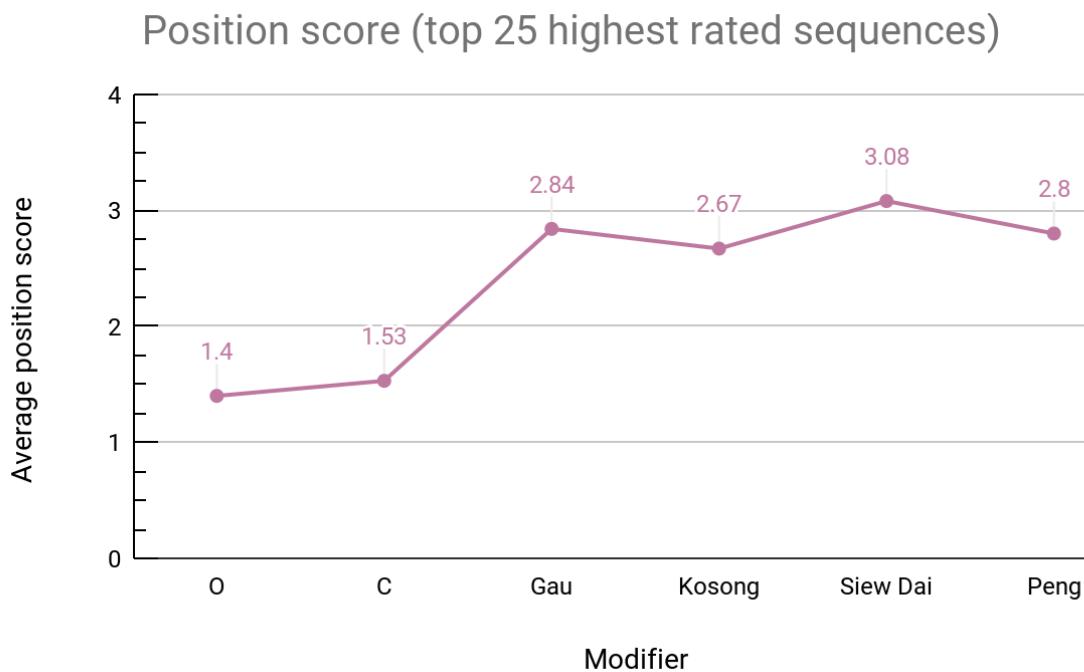
FIGURE 4. Average position score for each modifier, based on top 25 highest rated sequences

3. Direct Subjectivity Rating

3.1 Methodology

Experiment 2 employed a direct subjectivity rating method to assess modifier subjectivity. Similar to Experiment 1, six modifiers from the same four categories were selected, with participants rating the subjectivity of each modifier when attached to *kopi*. 21 *kopi* sequences were tested, including 7 test items and 14 fillers. The fillers were used to conceal the aim of the experiment. The full list of test items and fillers are found in Table 5 and 6 respectively.

Test items	
Sequence	Modifier tested
Kopi O	O
Kopi C	C
Kopi Gau	Gau
Kopi O Kosong	Kosong
Kopi C Kosong	Kosong
Kopi Siew Dai	Siew Dai
Kopi Peng	Peng

TABLE 5. List of 7 test items

Fillers	
Kopi Di Lo	Kopi C Po
Kopi Po	Kopi C Gah Dai
Kopi Gah Dai	Kopi Di Lo Peng
Kopi O Di Lo	Kopi Po Peng
Kopi O Po	Kopi Po Siew Dai
Kopi O Gah Dai	Kopi Gah Dai Peng
Kopi C Di Lo	Kopi Gau Siew Dai

TABLE 6. List of 14 fillers

Two types of sequences were present – one containing two modifiers and one containing a single modifier. For each sequence, the subjectivity rating of only one individual modifier was acquired each time, and never the combined subjectivity of both modifiers present in the sequence. This is exemplified in Figure 5. It should be noted that the subjectivity of *kosong* was measured via the sequences *kopi o kosong* and *kopi c kosong*, as *kopi kosong* is invalid.

FIGURE 5. Question about subjectivity of one modifier in a sequence containing two modifiers

Participants

50 participants took part in Experiment 2. Background information about each participant was collected regarding whether they had spent much of their childhood and thus grew up in Singapore. Participants had to be at least 21 years old, or 18 if they were a student in NUS. Participants had to indicate consent before proceeding with the experiment.

Procedure

Participants rated the subjectivity of modifiers on a 5-point scale, where 1 is 'completely objective' and 5 is 'completely subjective'. 'Subjective' was explained to mean reflecting an opinion and was in opposition to 'objective', which meant being factual and unbiased. Three examples were provided to guide participants in understanding the task: 'metal' was said to potentially be objective and could be rated 1, 'pretty' could potentially be considered subjective and rated 5, while 'old' could potentially be considered objective yet have an aspect of subjectivity and be rated 3. Participants were told to answer according to their intuition and that there were no right or wrong answers. Following the administration section, participants rated the subjectivity of each modifier in the given sequence.

3.2 Results

Subjectivity scores for each modifier were calculated by averaging their ratings across participants. Table 7 shows the subjectivity ratings for each modifier and its category. Higher scores indicate greater subjectivity. The subjectivity score for *kosong* was derived from the mean of its ratings via the sequences *kopi o kosong* and *kopi c kosong*. Milk emerged as the least subjective category, followed by temperature, sugar, and finally concentration as the most subjective, as seen in Figure 6.

Within the sugar category, a significant variation in individual modifier rating was observed (Figure 7), where *kosong* (rating = 1.33) received the lowest rating while *siew dai* (rating = 3.74) received the highest among the six modifiers. Having two data points at both extremes skewed the category rating, impacting its accuracy in reflecting individual modifier subjectivity.

Category	Modifier	Subjectivity Rating (individual)	Subjectivity Rating (Category)
Milk	O	1.5	1.81
	C	2.12	
Concentration	Gau	3.54	3.54
Sugar	Kosong	1.33	2.54
	Siew dai	3.74	
Temperature	Peng	1.98	1.98

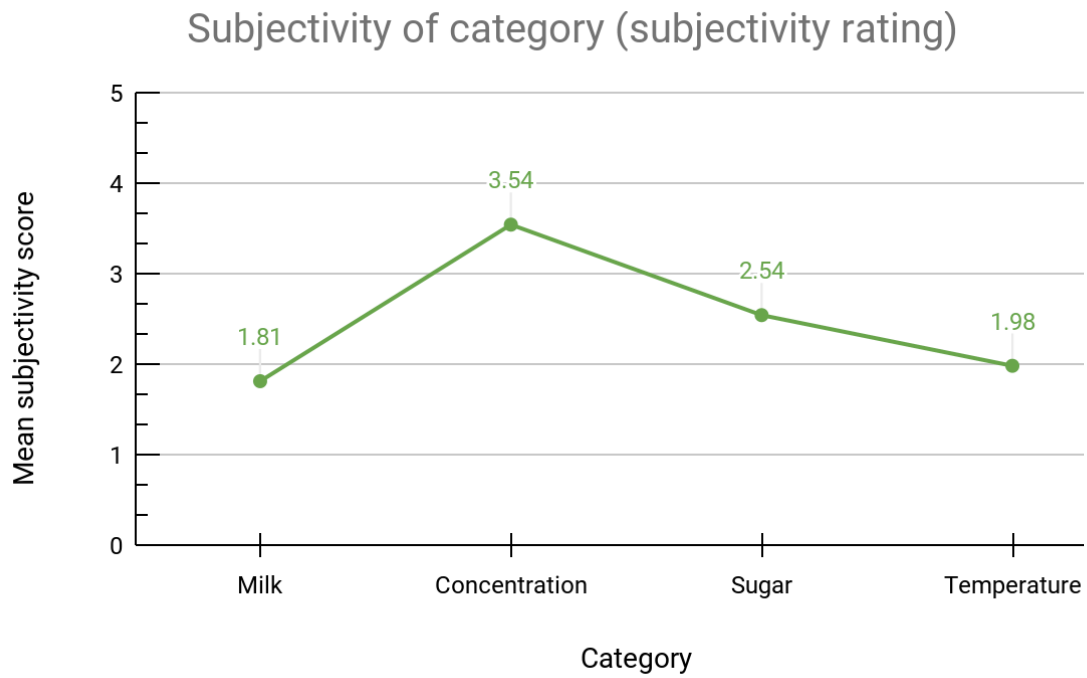**TABLE 7.** Average subjectivity rating for each modifier

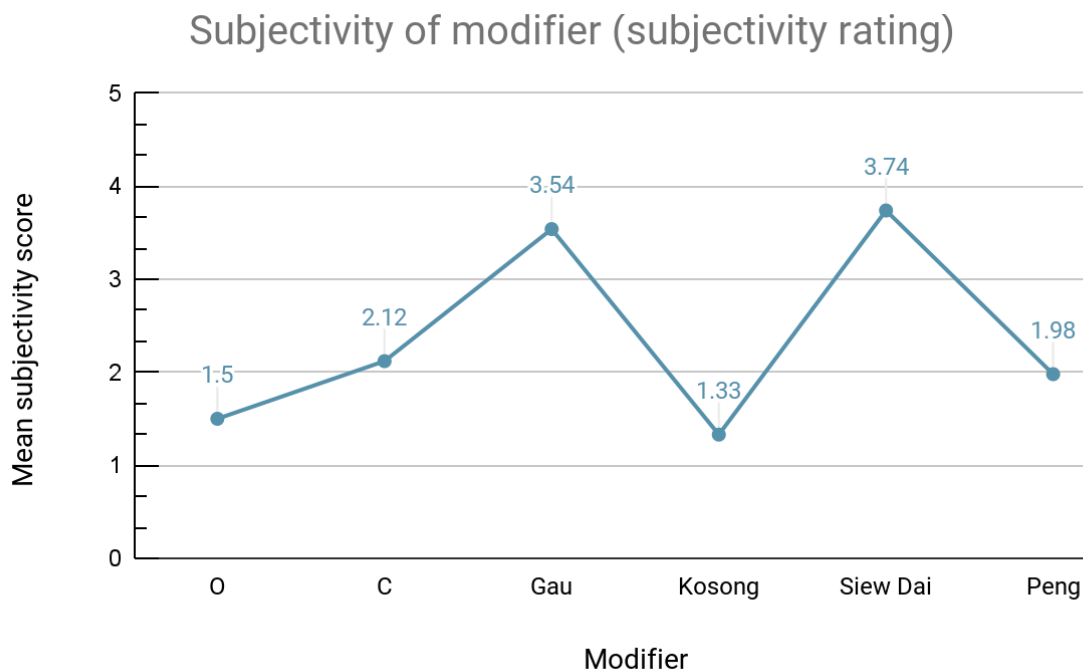**FIGURE 6.** Subjectivity scores for each modifier category in the subjectivity rating task

FIGURE 7. Subjectivity scores for each modifier in the subjectivity rating task

4. Faultless Disagreement – Indirect Subjectivity Measure
4.1 Methodology

Experiment 3 used a faultless disagreement task to gauge modifier subjectivity. The same six modifiers from the four categories were tested. The faultless disagreement task involved participants evaluating a set of conflicting statements and deciding whether both statements could simultaneously be correct or if one had to be wrong.

Participants

62 participants participated in the online survey. Participants had to be aged 18 and above, and indicated consent for participation before proceeding with the experiment.

Procedure

Participants were presented with two conflicting statements uttered by John and James, and had to determine whether both could be right or one must be wrong. For each set of statements, participants had to answer the question, "Can John and James both be right, or must one of them be wrong?" An example of one such task is shown in Figure 8.

FIGURE 8. One set of opposing statements and their two possible responses

Six sets of test items were used. Each set contained English phrases corresponding to each *kopi* modifier, as seen in Table 8. For instance, 'does not have milk' referred to the modifier *o* along with its counterpart 'milk'. Three modifiers (*o*, *c*, and *kosong*) corresponded to absolute adjectives, while the other three (*gau*, *siew dai*, and *peng)* corresponded to non-absolute ones.

Set	Modifier	Opposing statements presented
1	O	John: "This coffee has **milk**."
		James: "This coffee **does not have milk**."
2	C	John: "This coffee has **evaporated milk**."
		James: "This coffee **does not have evaporated milk**."
3	Gau	John: "This coffee is **strong**."
		James: "This coffee is **not strong**."
4	Kosong	John: "This coffee has **sugar**."
		James: "This coffee **does not have sugar**."
5	Siew dai	John: "This coffee is **sweet**."
		James: "This coffee is **less sweet**."
6	Peng	John: "This coffee is **iced**"
		James: "This coffee is **not iced**"

TABLE 8. Full list of test items used in faultless disagreement test

4.2 Results

For each modifier tested, the number of judgments were tabulated on whether both speakers could be right or if one had to be wrong (Table 9). The ratio of judgments where both speakers could be right was calculated against the total judgments made per modifier. This ratio is a proxy for the modifier's subjectivity, with higher scores indicating greater subjectivity.

Concentration emerged as the most subjective category, followed by sugar, milk, and then temperature, as seen on the line graph (Figure 9). At the modifier level (Figure 10), the indirect subjectivity rating differs slightly, with *siew dai* from the sugar category (rating = 0.95) emerging as most subjective, followed closely by *gau* from the concentration category (rating = 0.94), *kosong* from the sugar category (rating = 0.34), modifiers *c* and *o* from from the milk category (ratings = 0.21 and 0.19), and lastly *peng* as the least subjective (rating = 0.16). Notably, *siew dai* and *kosong* received markedly different subjectivity scores despite belonging to the same sugar category.

Modifier	Both can be right	One must be wrong	% both right	Both right : total (modifier)	Both right : total (category)
O	12	50	19.4	0.19	0.20
C	13	49	21.0	0.21	
Gau	58	4	93.5	0.94	0.94
Kosong	21	41	33.9	0.34	0.65
Siew Dai	59	3	95.2	0.95	
Peng	10	52	16.1	0.16	0.16

TABLE 9. Results from faultless disagreement survey – a proxy of subjectivity
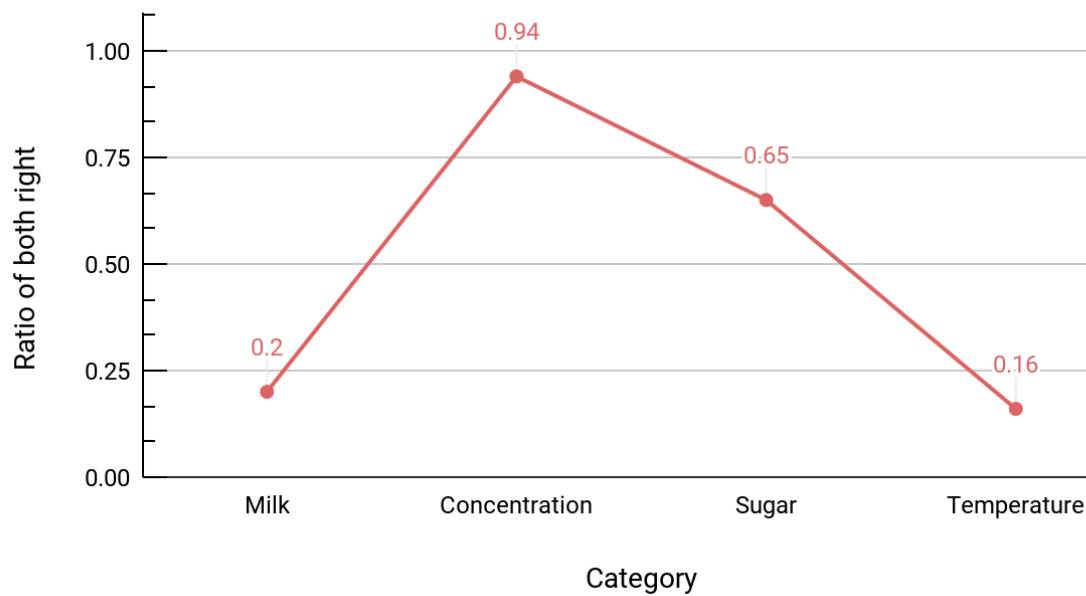
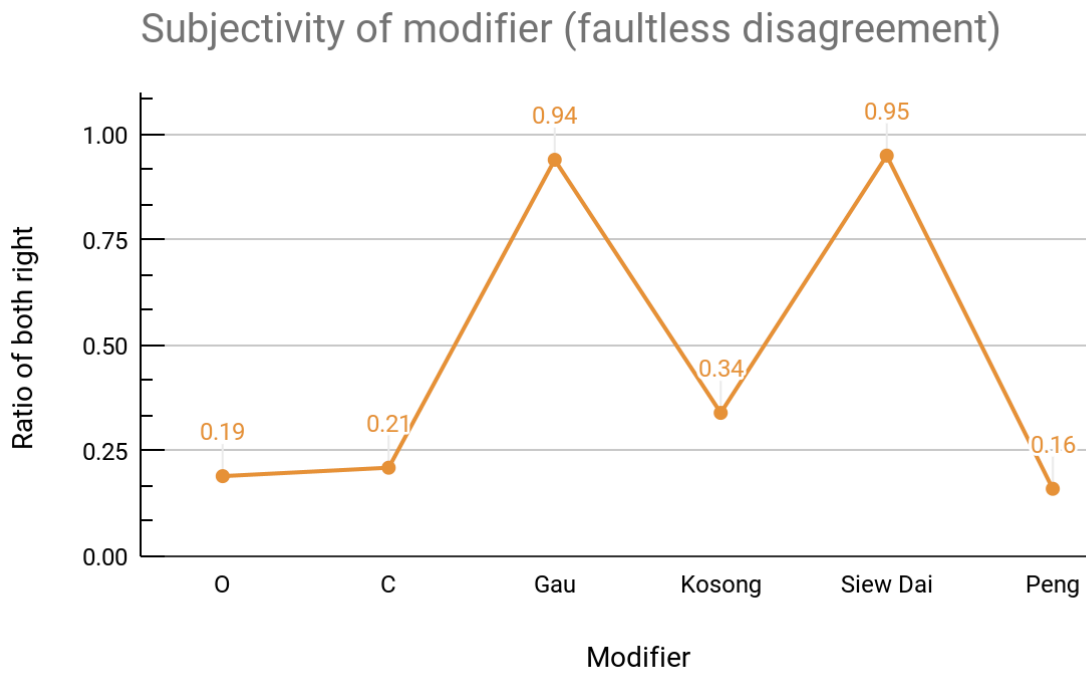**FIGURE 9.** Subjectivity score for each category in the faultless disagreement task

FIGURE 10. Subjectivity score for each modifier in the faultless disagreement task

5. Discussion
Ordering Preference

In summary, the highest rated sequences by both modifier and category contained modifiers *c* and *o* from the milk category in the first position closest to the noun *kopi*. Conversely, the lowest rated sequences by modifier contained modifiers from the temperature, sugar, or concentration categories in the first position. The lowest rated sequences by category contained modifiers from either the sugar or concentration categories in the first position. Notably, none of the lowest 25 rated sequences (Figure 3) contained modifiers from the milk category in the first position. Overall, there was no consensus on the least preferred sequences, as modifiers from the sugar, concentration, and temperature categories were all found in the first positions amongst the lowest rated sequences.

Subjectivity

A comparison between the two measures of subjectivity – the direct subjectivity rating and the faultless disagreement task – reveals a general alignment in the tendencies of each modifier category. Across both experiments, *siew dai* emerged as the most subjective modifier. However, there was a noticeable contrast in the subjectivity scores of *kosong* and *siew dai*, with *kosong* rated closer to objective and *siew dai* closer to subjective. Yet, while *kosong* was deemed the least subjective in the direct subjectivity test, it was *peng* that emerged as the least subjective in the faultless disagreement task. Nevertheless, both *kosong* and *peng* tended towards being less subjective in both measures, suggesting a general consensus in the subjectivity of these modifiers.

Comparing Ordering Preferences and Subjectivity

Given the significant disparity in subjectivity scores between modifiers *kosong* and *siew dai* within the sugar category, it would be prudent to compare the ordering preference with subjectivity by both individual modifiers and by category for a more comprehensive analysis.

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A visual examination of modifier subjectivity alongside their position score is seen in Figure 11, using the top 25 highest rated sequences. There appears to be a correlation between modifier subjectivity and position score, where less subjective modifiers tend to have a lower position score, meaning that they are found closer to *kopi*. This correlation is the most significant for the milk modifiers *o* and *c*. However, this correlation appears weaker for other modifiers, especially for *peng*. Although *peng* has a relatively lower subjectivity score indicating that it is less subjective, its position score aligns with the other modifiers. Additionally even though *siew dai* is significantly more subjective than *kosong*, their average position scores are rather similar.
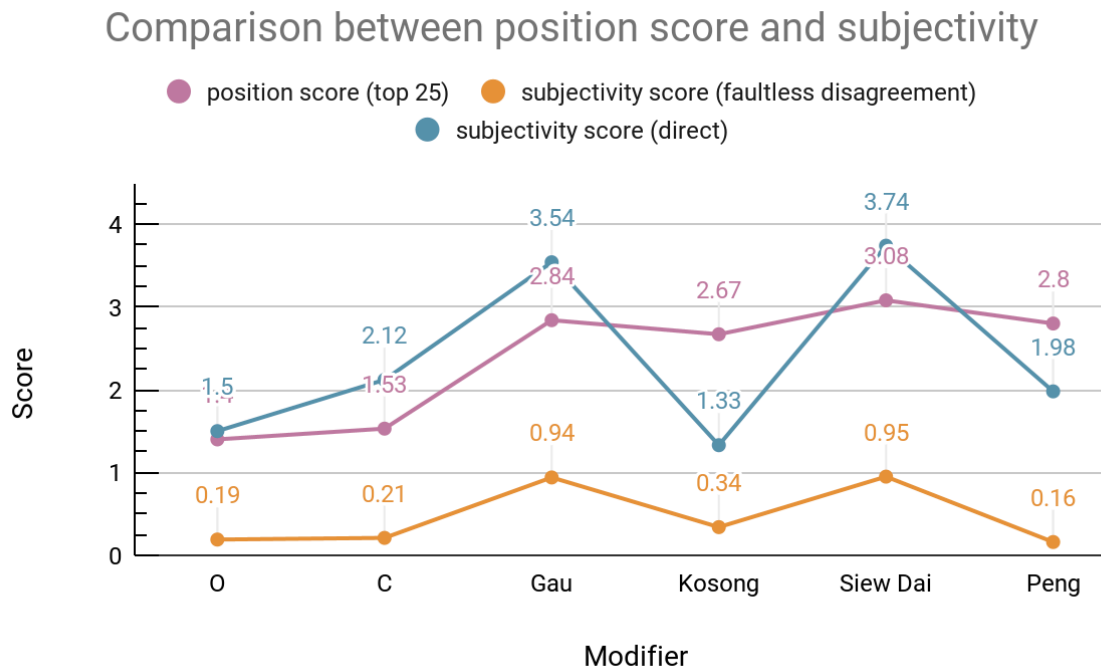

FIGURE 11. Comparison between position score and subjectivity scores of modifiers

When comparing position score with subjectivity by category (Figure 12), a definitive correlation is not observed. Although being less subjective correlates with appearing closer to *kopi* for the milk category, and being more objective correlates with appearing further from *kopi* for the concentration category, such a pattern is not consistent for the sugar and temperature categories. Crucially, although temperature is perceived as the least subjective in the direct subjectivity rating test (subjectivity score = 0.16) and the second least subjective in the faultless disagreement test (subjectivity score = 1.98), it appears nearly as distant from *kopi* as the categories concentration and sugar, rather than closer to the first position if the effect of subjectivity was indeed present.

Comparison between category position score and subjectivity

● position score (top 25)   ● subjectivity score (direct)
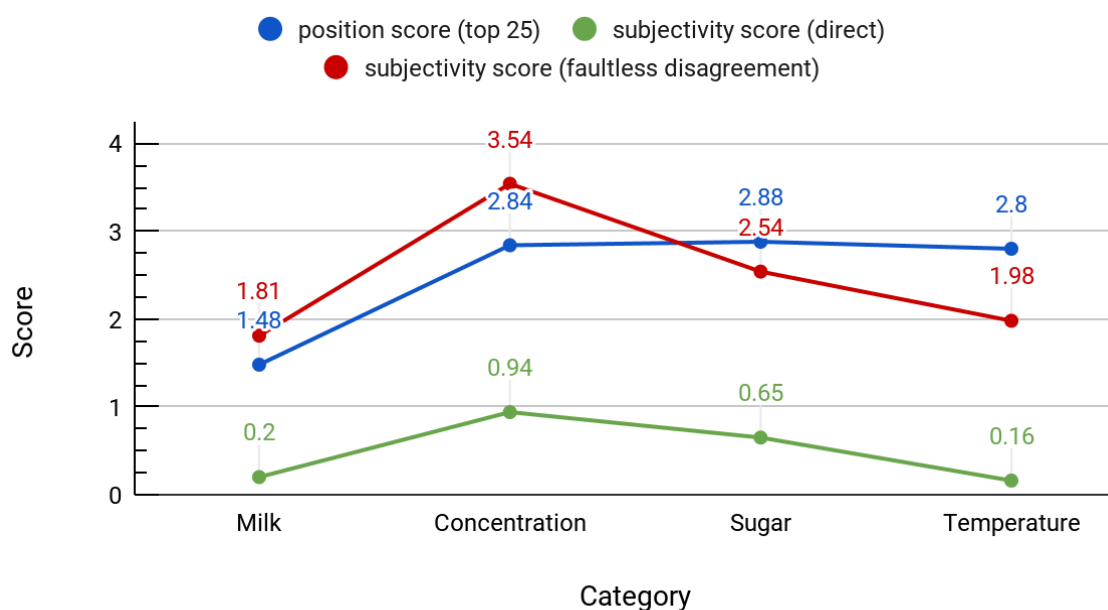● subjectivity score (faultless disagreement)

FIGURE 12. Comparison between position score and subjectivity scores of categories

Reiterating the results from experiment 1, the preferred sequence for *kopi* modifiers is *kopi* – milk – concentration – sugar – temperature, closely followed by the sequence *kopi* – concentration – milk – sugar – temperature. From experiment 2, concentration emerges as the most subjective category followed by sugar, milk, and temperature. Conversely in experiment 3, concentration is still the most subjective, but is followed by sugar, temperature, then milk.

Overall, it remains inconclusive whether a modifier's subjectivity can fully account for the preferred sequence of *kopi* orders. While the less subjective modifiers *o* and *c* from the milk category tend to appear closer to *kopi* and the most subjective modifier *siew dai* from the sugar category tends to be the furthest, the other modifiers with subjectivity scores in between, such as *kosong* from the sugar category and *peng* from the temperature category, do not consistently show the same inverse relation between subjectivity and position tendency. Hence, the effect of subjectivity at both the modifier and category level, does not reliably predict modifier sequence, indicating that relying solely on subjectivity to explain modifier sequence in *kopi* orders is inadequate.

An alternative theory worth exploring to account for modifier sequence is the absoluteness of the modifier. As observed in the faultless disagreement task, the modifiers *o*, *c*, and *kosong* corresponded to absolute English adjectives and were found closest to *kopi* based on their position score, while *gau*, *siew dai* and *peng* corresponded to non-absolute adjectives and were consistently furthest from *kopi*. This gives rise to the potential of the influence of absoluteness in meaning on tendency of distance from the noun. Future studies can delve into the extent to which the gradability of a modifier affects its positional distance from *kopi*.

Another potential theory to explore is the weight of importance a speaker assigns to each ingredient component, each corresponding to one modifier. A hypothesis is that components of greater importance to the speaker would be mentioned first as it is at the forefront of the speaker's mind. Inspired by the notion of dominance advanced by Erteschik-Shir and Lappin (1979), the theory

of dominance suggests that speakers prioritise components they value more, followed by those of lesser value. A lie test can be used to determine the importance attributed to each component. Being able to negate the presence of a component establishes it as dominant in the kopi order, with higher deniability ratings indicating greater importance. By comparing deniability scores with positional scores of each component, we can assess whether the weight of importance of a component, as determined by dominance, influences modifier sequence.

6. Limitations

The faultless disagreement task had several layers of indirectness, each contributing to the limitations of such a measurement. Using English phrases as proxies for Singlish modifiers added another layer of complexity to this already-indirect measurement of subjectivity, for which the latter assumes that the potential for faultless disagreement is a good measure of subjectivity. This assumption then compounds with the assumption that there is a direct correlation between the English phrase and Singlish modifier. Additionally, the use of non-absolute and absolute descriptions could have potentially altered perceptions associated with the modifiers due to the former type having gradable properties and the latter the lack of, thereby potentially affecting the resulting scores that would be correlated to the *kopi* modifier.

Furthermore, there is ambiguity in the phrase referring to the absence of the modifier *c*. The subjectivity of *c* was tested by juxtaposing 'evaporated milk' with 'does not have evaporated milk', of which the latter phrase could also refer to the modifier *o*. This ambiguity in reference could have affected participants' judgments, potentially compromising the accuracy of results.

Moreover, certain *kopi* modifiers such as *po* and *di lo* from the concentration category, *gah dai* from the sugar category, and *pua sio* from the temperature category, were omitted from the experiments due to logistical constraints. Their exclusion leaves gaps in the analysis, highlighting the need for further studies to include these modifiers for a more comprehensive understanding of *kopi* modifiers. As such, extending the inconclusive findings regarding the effect of subjectivity on modifier sequencing to all *kopi* modifiers should be done with careful consideration.

7. Conclusion

In conclusion, while there is some correlation between modifier subjectivity and its position at the modifier level, it remains inconclusive whether subjectivity sufficiently explains the position of *kopi* modifiers at both the modifier and category level.

Wordcount: 3373

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