Phonetic fitness

in J.R.R. Tolkien's constructed language

Quenya

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Overview

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3. Results
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1. Background

J.R.R. Tolkien

- English author & philologist
- *The Lord of the Rings*
- constructed languages
- paved the way for conlangs in modern fantasy & sci-fi

(Tolkien 2020: 129-133)

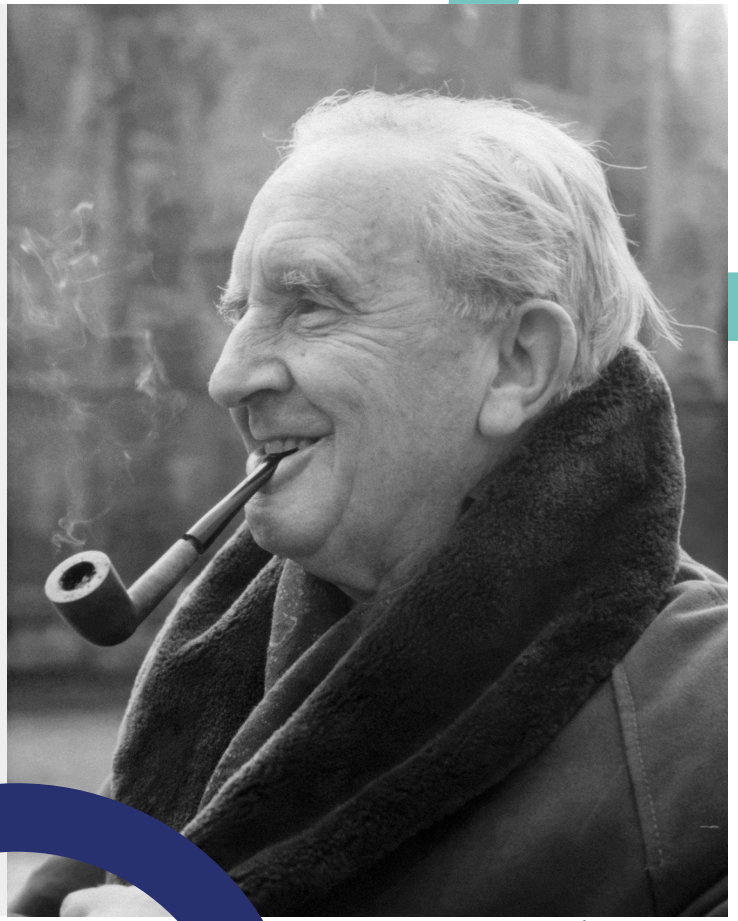

Fig. 1. J.R.R. Tolkien.

“The invention of languages is the foundation. The ‘stories’ were made rather to **provide a world for the languages** than the reverse. […] It is to me, anyway, largely **an essay in ‘linguistic aesthetic’**”

(Tolkien 2023: 219-220)

Tolkien' incentives

"giving expression to my personal linguistic 'aesthetic'"

(Tolkien 2023: 536)

phonaesthetics

(Crystal 1995)

"most interested perhaps in [...] word-form in relation to meaning"

(Tolkien 2020: 24)

phonetic fitness

= sound symbolism

Tolkien on Quenya

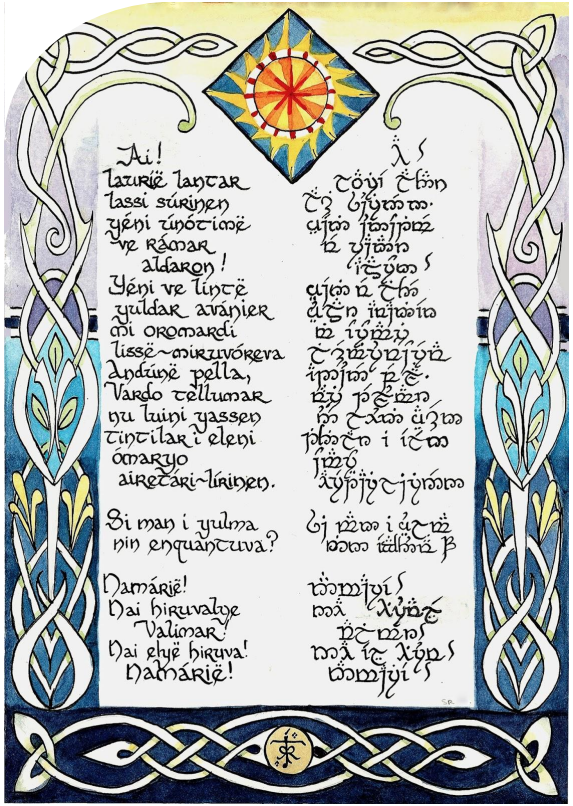

Fig. 2. Fanart of Tolkien's poem Namárië.

"[a] language that has in the opinion of, or rather the feeling of, its constructor reached **a highish level both of beauty in word-form** considered abstractly, and **of ingenuity in the relations of symbol and sense**" (Tolkien 2020: 23)

Tolkien on Quenya

“beauty in word-form”

rated as pleasant
in previous research
on conlangs

(Mooshammer et al. 2023: 17)

“ingenuity in the relations of symbol and sense”

positive denotation =
pleasant

negative denotation =
unpleasant

Research question & hypothesis 1

How are Quenyan words with either positive or negative denotations rated in terms of their aesthetic appeal?

Quenyan words with **positive denotations** are rated as **more appealing** than those with negative denotations.

“Most conlangs are tailored towards a Western audience.”

(Mooshammer et al. 2022)

Aesthetics in language

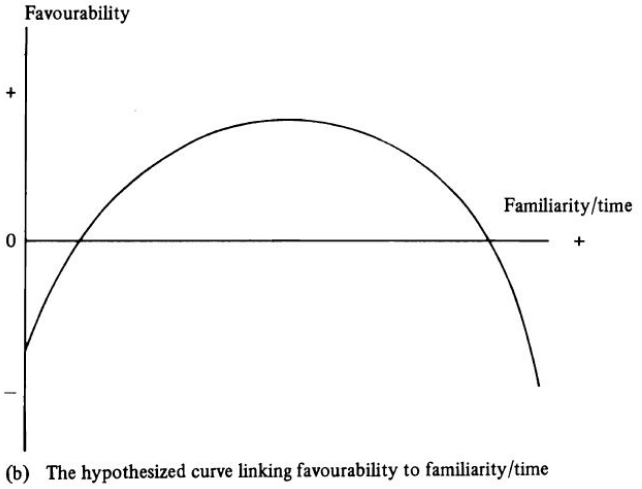

Fig. 3. Favourability in relation to the novelty/familiarity continuum as an hypothesised inverted U curve (Sluckin, Hargreaves & Coleman 1983).

Liking in relation to novelty/familiarity continuum

(Sluckin, Hargreaves & Colman 1983)

Phoneme inventory and **phonotactics** of L1 might influence aesthetic judgements

(cf. Mooshammer et al. 2023: 11)

Tolkien’s influences

- speaker & learner of **Germanic languages**

  (Robbins 2013: 184; Tolkien 2023: 213)

- Quenya influenced by **Latin, Greek,** and **Finnish**

  (Tolkien 2023: 265)

- Finnish as the only non-Indo-European influence

Research question & hypothesis 2

How do the ratings differ in German L1 and Japanese L1 speakers?

The **difference** between the two conditions is **more pronounced in German L1 speakers** than in Japanese L1 speakers.

2. Methods

Methods

- OpenSesame

  (Mathôt, Schreij & Theeuwes 2012)

- Jatos server MindProbe

  (Lange, Kühn & Filevich 2015)

- audio stimuli

- 6-point Likert scale (Likert 1932):

  1 = not appealing at all
  6 = very appealing

Stimuli

- 20 Quenyan words chosen from *Das große Elbisch Buch* (Pesch 2009)
- two conditions: positive & negative
  10 words each
- self-recorded
- randomised

List of positive stimuli

condition	stimulus	word class	transcription	German	English	valence
positive	calima	adjective	/ˈka.li.ma/	hell glänzend	luminous	6.29
positive	elenya	adjective	/eˈlen.ja/	sternig, zu den Sternen gehörig	stellar, of the stars	5.95
positive	ilvana	adjective	/il.ˈvan.ja/	vollkommen	perfect	7.19
positive	lindale	noun	/ˈlin.da.le/	Musik	music	7.67
positive	namarië	interjection	/naˈmaː.ri.e/	lebwohl, sei wohl	farewell, be well	3.43
positive	rilma	noun	/ˈril.ma/	schimmerndes Licht	shimmering light	6.95
positive	tinde	noun	/ˈtin.de/	Funkeln	sparkle/twinkle	6.55
positive	vanimalda	adjective	/va.ni.ˈmal.da/	überaus schön	exceptionally beautiful	7.61
positive	varanda	adjective	/va.ˈran.da/	erhaben	awe-inspiring/sublime	6.85
positive	vilvarin	noun	/ˈvil.va.rin/	Schmetterling	butterfly	7.23

Table 1. List of stimuli with positive denotations sorted alphabetically, including word class, transcription, German translation from *Das große Elbisch Buch* (Pesch 2009: 265-441), English translation, and valence rating (Warriner, Kuperman & Brysbaert 2013).

beauty (e.g. *vanimalda* ‘exceptionally beautiful’)

light (e.g. *calima* ‘luminous’)

mean valence: 6.75 (scale from 1 to 9)
(Warriner, Kuperman & Brysbaert 2013)

List of negative stimuli

condition	stimulus	word class	transcription	German	English	valence
negative	hloima	noun	/ˈɬoɪ.ma/	Gift	poison	2.16
negative	loico	noun	/ˈloɪ.ko/	Leiche	corpse	2.45
negative	mausta	noun	/ˈmaʊ.sta/	Zwang	compulsion	3.95
negative	Melkor	proper noun	/ˈmel.kor/	er, der in Macht/Gier steht	he who arises in might/greed	2.48
negative	nahtan	verb (inflected)	/ˈnax.tan/	ich erschlage	I slay/beat someone to death	2.63
negative	naraca	adjective	/ˈna.ra.ka/	harsch, gewalttätig	harsh, violent	2.26
negative	ongwe	noun	/ˈoŋ.gwe/	Verbrechen	crime	1.95
negative	rohta	noun	/ˈrox.ta/	Schuld, Sünde	debt, sin	1.95
negative	saucare	noun	/ˈsaʊ.ka.re/	Fehltat	misdeed, violation	2.29
negative	ulca	adjective	/ˈul.ka/	böse, schlecht, boshaft, falsch	evil, bad, malicious, wrong	2.34

Table 2. List of stimuli with negative denotations sorted alphabetically, including word class, transcription, German translation from *Das große Elbisch Buch* (Pesch 2009: 265-441), English translation, and valence rating (Warriner, Kuperman & Brysbaert 2013).

death (e.g. *loico* ‘corpse’)

wrongdoings (e.g. *ongwe* ‘crime’)

mean valence: 2.45 (scale from 1 to 9)
(Warriner, Kuperman & Brysbaert 2013)

Preventing confounds

- asked participants whether the stimulus reminded them of anything
- asked participants whether they recognised the language

Participants

- fellow students, friends, family
- 46 participants completed testing session
- excluded 3 due to little to no variety
- 43 participants for data analysis

Age

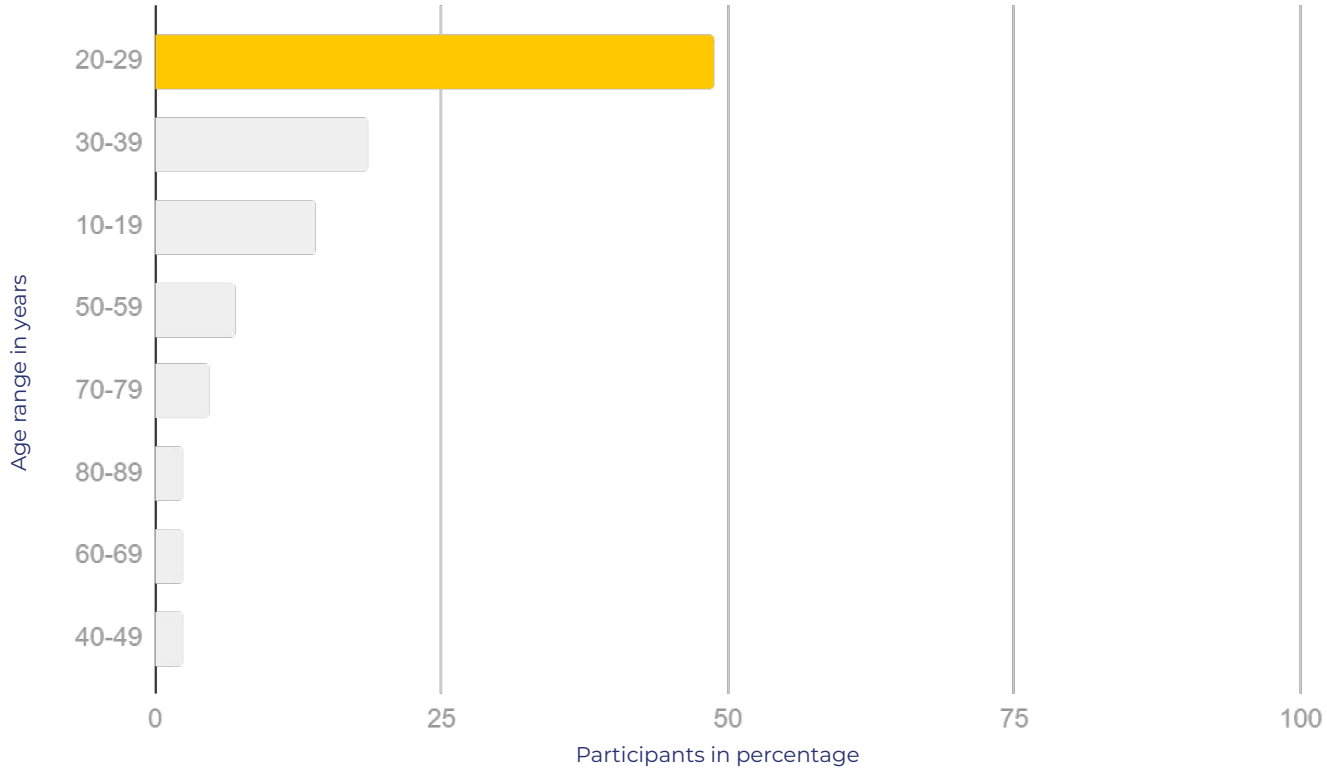

Fig. 4. Participants' age ranges in percent.

Gender

54%
FEMALE

41%
MALE

5%
OTHER/DIVERSE

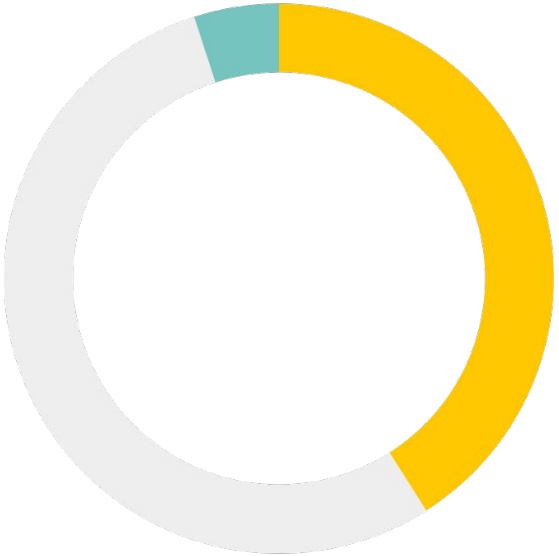

Fig. 5. Participants' gender identities in percent.

Native language

49%
German

44%
Japanese

7%
Other *

* one native speaker each of Bosnian, Hungarian, and Swedish

Fig. 6. Participants' native languages in percent.

Data analysis

- done in RStudio
  (Posit team 2023)
- precoded script by Theresa Matzinger
  (2022)
- mean rating per condition with 95% confidence intervals, lower and upper limits of confidence interval

3. Results

Overall rating

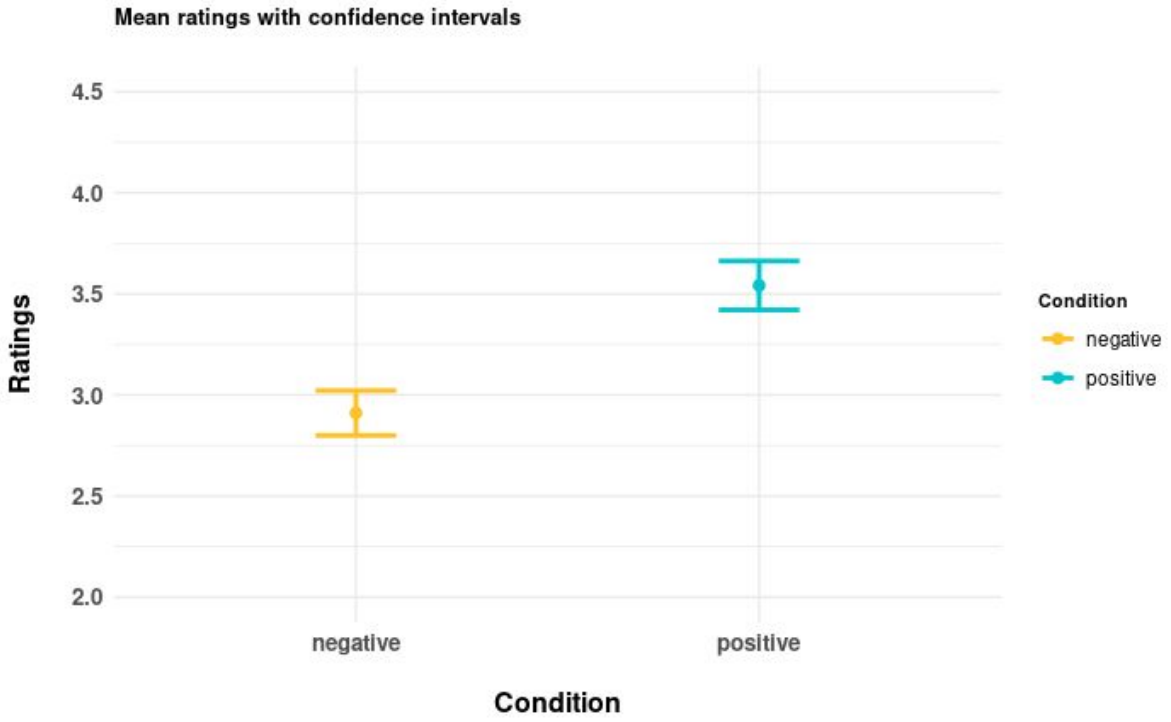

Fig. 7. Overall mean perceived aesthetic appeal of Quenyan words with positive (turquoise) and negative (yellow) denotations. Whiskers indicate 95% confidence intervals.

positive mean	3.54 ± CI 1.28
negative mean	2.91 ± CI 1.17

Hypothesis 1 confirmed

Quenyan words with **positive denotations** were rated as **significantly more appealing** than those with negative denotations.

German L1 vs. Japanese L1 rating

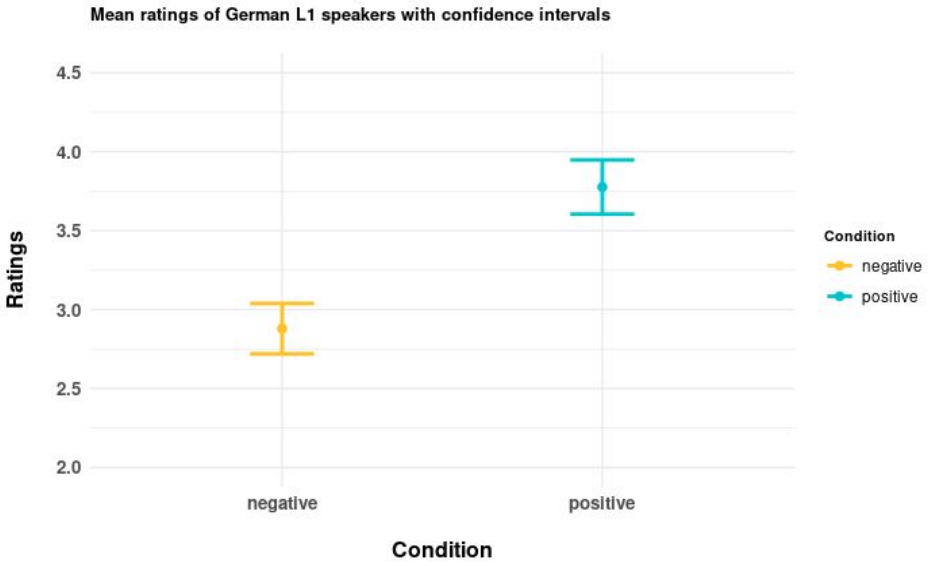

Fig. 8. Mean perceived aesthetic appeal of Quenyan words with positive (turquoise) and negative (yellow) denotations by German L1 speakers. Whiskers indicate 95% confidence intervals.

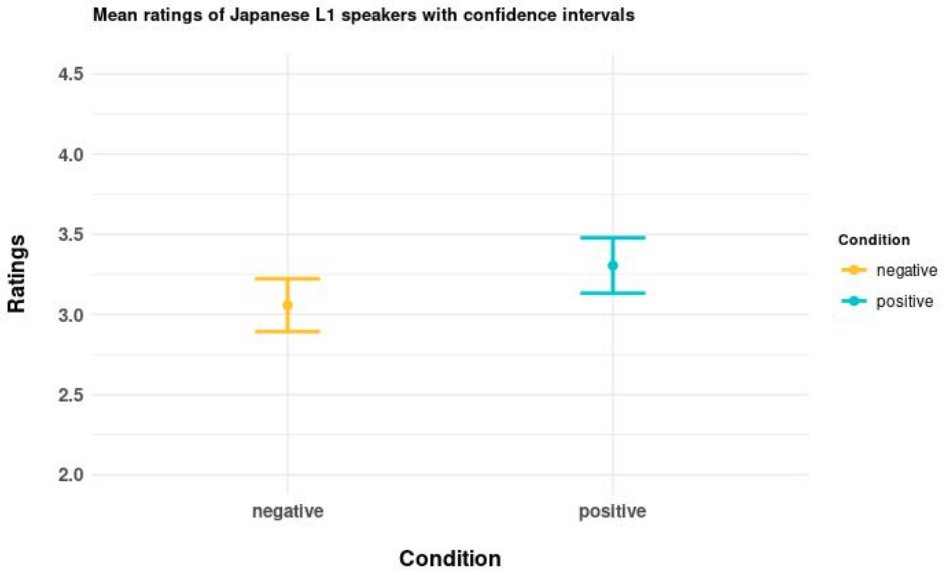

Fig. 9. Mean perceived aesthetic appeal of Quenyan words with positive (turquoise) and negative (yellow) denotations by Japanese L1 speakers. Whiskers indicate 95% confidence intervals.

Hypothesis 2 confirmed

The **difference** between the two conditions was **more pronounced in German L1 speakers** than in Japanese L1 speakers.

Interpretation

Tolkien seems to have been **successful** in his endeavour to design **Quenya** as **a language that possesses phonetic fitness.**

German L1 speakers tend to **agree more with Tolkien's judgements of aesthetic appeal** than Japanese L1 speakers.

4. Implications

Constructed languages …

as a growing research field

future research on nuance within one conlang

Fig. 13. *The Lord of the Rings: The Fellowship of the Ring* (2001) film poster.

in sci-fi & fantasy

could take non-Western evaluations into account

“**[I]t may happen** that a new target language **audience perceives**, on the one hand, Tolkien’s **[Elvish] tongues as phonaesthetically unpleasant** and, on the other, **[Orkish] as agreeable**.”

(Honegger 2023: 150)

5. Q&A

German L1 rating (excl. recognised)

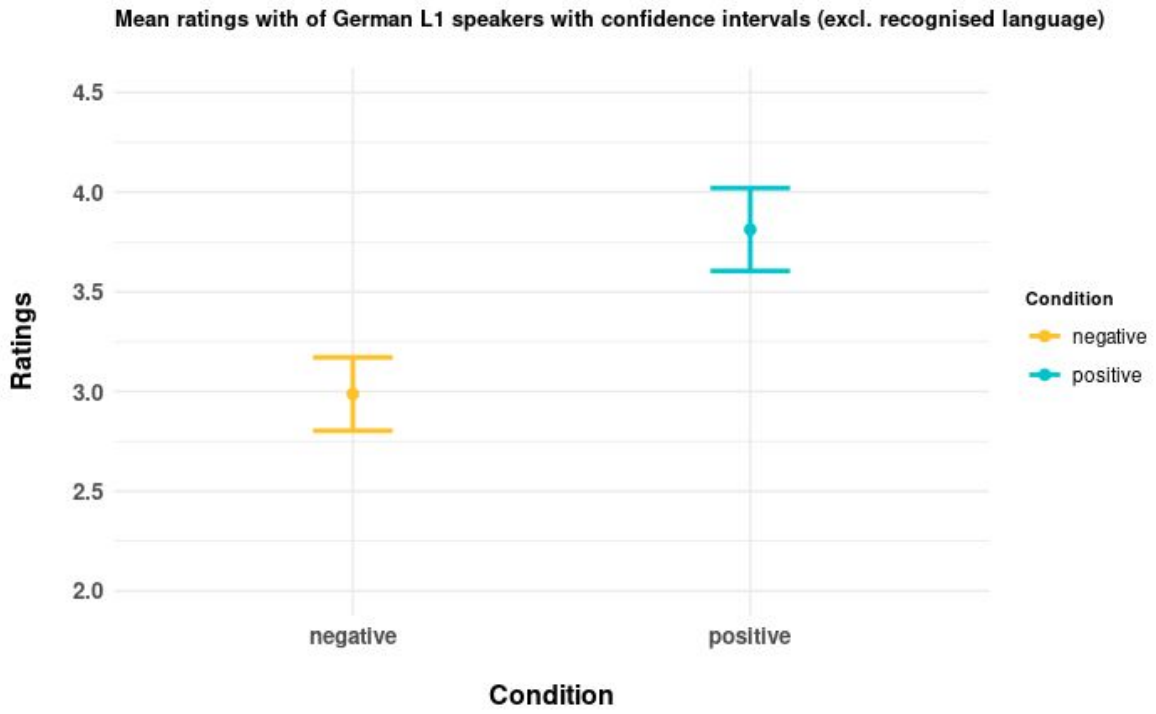

Fig. 11. Mean perceived aesthetic appeal of Quenyan words with positive (turquoise) and negative (yellow) denotations by German L1 speakers excluding the ratings of participants who recognised stimuli language. Whiskers indicate 95% confidence intervals.

Overall ranking

ranking	stimuli	condition	mean_rating	sd_ratings	ci_lower	ci_upper
1	elenya	positive	3.953488	1.2335294	3.573864	4.333113
2	lindale	positive	3.883721	1.3488849	3.468595	4.298846
3	ilvana	positive	3.837209	1.3261156	3.429091	4.245327
4	vanimalda	positive	3.744186	1.3817350	3.318951	4.169421
5	varanda	positive	3.697674	1.0808921	3.365025	4.030324
6	namarie	positive	3.534884	1.2411369	3.152918	3.916849
7	vilvarin	positive	3.511628	1.4698897	3.059263	3.963993
8	calima	positive	3.279070	1.1196424	2.934495	3.623645
9	loico	negative	3.209302	1.2828194	2.814509	3.604096
10	Melkor	negative	3.200000	1.1367971	2.836435	3.563565
11	tinde	positive	3.069767	1.1421648	2.718261	3.421274
12	nahtan	negative	3.069767	1.3164771	2.664616	3.474919
13	naraca	negative	3.046512	1.0900740	2.711036	3.381987
14	mausta	negative	2.953488	0.9500248	2.661114	3.245863
15	rilma	positive	2.906977	1.0191956	2.593315	3.220639
16	saucare	negative	2.837209	1.2136178	2.463713	3.210706
17	ulca	negative	2.790698	1.1032018	2.451182	3.130213
18	ongwe	negative	2.790698	1.1661524	2.431809	3.149586
19	rohta	negative	2.697674	1.2254228	2.320545	3.074804
20	hloima	negative	2.534884	1.0767862	2.203498	2.866270

Table 3. Overall mean perceived aesthetic appeal of each Quenyan word with standard deviation and 95% confidence intervals.

German L1 vs. Japanese L1 ranking

German L1 ranking

ranking	stimuli	condition	mean_rating	sd_ratings	ci_lower	ci_upper
1	lindale	positive	4.333333	1.2382784	3.769676	4.896991
2	elenya	positive	4.238095	1.1359913	3.720998	4.755192
3	varanda	positive	4.142857	1.0623424	3.659285	4.626430
4	vanimalda	positive	3.952381	1.3955712	3.317125	4.587637
5	ilvana	positive	3.809524	1.1670068	3.278309	4.340739
6	vilvarin	positive	3.809524	1.3645163	3.188403	4.430644
7	calima	positive	3.619048	1.1608700	3.090626	4.147469
8	namarie	positive	3.571429	1.3627703	2.951103	4.191754
9	nahtan	negative	3.476190	1.4006801	2.838609	4.113772
10	rilma	positive	3.190476	1.1233453	2.679136	3.701817
11	loico	negative	3.095238	1.2208506	2.539514	3.650963
12	ongwe	negative	3.095238	1.3001831	2.503402	3.687074
13	tinde	positive	3.095238	1.1791845	2.558480	3.631996
14	mausta	negative	2.952381	1.0235326	2.486474	3.418287
15	melcor	negative	2.944444	1.1099667	2.392471	3.496418
16	naraca	negative	2.857143	1.1526367	2.332469	3.381817
17	ulca	negative	2.714286	0.9561829	2.279036	3.149535
18	rohta	negative	2.666667	1.0645813	2.182075	3.151258
19	saucare	negative	2.619048	1.2440334	2.052770	3.185325
20	hloima	negative	2.380952	0.9734573	1.937840	2.824065

Table 4. Mean perceived aesthetic appeal of each Quenyan word by German L1 speakers with standard deviation and 95% confidence intervals.

Japanese L1 ranking

ranking	stimuli	condition	mean_rating	sd_ratings	ci_lower	ci_upper
1	ilvana	positive	3.842105	1.5004873	3.118894	4.565317
2	elenya	positive	3.684211	1.2042809	3.103766	4.264655
3	loico	negative	3.631579	1.1647855	3.070170	4.192988
4	melcor	negative	3.578947	1.0706068	3.062931	4.094963
5	vanimalda	positive	3.526316	1.3067526	2.896481	4.156150
6	namarie	positive	3.473684	1.0202626	2.981933	3.965435
7	lindale	positive	3.421053	1.3464269	2.772096	4.070010
8	naraca	negative	3.263158	1.0457377	2.759128	3.767187
9	varanda	positive	3.210526	0.9763280	2.739951	3.681101
10	tinde	positive	3.157895	1.1672931	2.595277	3.720512
11	saucare	negative	3.105263	1.2425215	2.506387	3.704139
12	vilvarin	positive	3.105263	1.3701069	2.444893	3.765634
13	calima	positive	3.052632	0.9703198	2.584952	3.520311
14	mausta	negative	3.052632	0.9112680	2.613414	3.491849
15	ulca	negative	3.000000	1.2472191	2.398860	3.601140
16	rohta	negative	2.947368	1.3529262	2.295279	3.599458
17	hloima	negative	2.842105	1.1672931	2.279488	3.404723
18	nahtan	negative	2.842105	1.0678721	2.327407	3.356803
19	rilma	positive	2.578947	0.8377078	2.175185	2.982710
20	ongwe	negative	2.315789	0.8200699	1.920528	2.711051

Table 5. Mean perceived aesthetic appeal of each Quenyan word by Japanese L1 speakers with standard deviation and 95% confidence intervals.

Figures & tables

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