

Relation between Word Order of Languages and Serotonin Transporter Gene

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1 Introduction

Serotonin transporter gene (5-HTTLPR) has two alleles: Short (S) and Long (L). Relative frequency of S allele (S-ratio in this paper) differs across populations. African populations have low S-ratio, say 20% and East Asian populations have high S-ratio, say 70% (Gureyev et al., 2014).

Courtet et al., (2001) show that the relative frequencies of the S allele were significantly higher in the violent suicidal attempters than in the controls. Chiao and Blizinsky (2010) show culture–gene coevolution between allelic frequency of 5-HTTLPR and cultural values of individualism–collectivism. They show that collectivistic cultures were significantly more likely to comprise individuals carrying the S allele of the 5-HTTLPR.

We have investigated relations between word order (WO) of languages (focused on the order of Object and Verb: OV/VO) and suicide-rate / homicide-rate of the speakers’ populations (Ehara, 2015), the distribution of Y-chromosome DNA haplogroups of speakers’ populations (Ehara, 2018) and the distribution of mitochondrial DNA haplogroups of speakers’ populations (Ehara, 2020). In this paper, we will investigate relation between word order of languages and the S-ratio of the speakers’ populations. Our conjecture is "OV language speakers have high S-ratio and VO language speakers have low S-ratio".

2 Data

Data for the word order (OV/VO) are obtained mainly from the WALS online database (Dryer and Haspelmath, 2013) and Yamamoto's book (Yamamoto, 2003).

Data for S-ratio of populations used in this study are listed in Appendix. They are obtained from papers described in the reference column of the appendix. Language names, their word orders and their speakers' S-

ratio are listed in Table 2. Some languages (for example, Mandarin) appear multiple times, because they are spoken in multiple areas or by multiple populations.

3 Global analysis

T-test is done for the data in Table 2. OV vs VO word order language speakers have significantly different S-ratio, that is shown in Table 1.

Table 1: T-test result

WO type	OV	VO
N	34	75
Mean	56.7	43.61
S.D.	15.01	18.31
T-value	3.7	
P-value	0.0004	

Figure 1 shows the relation between East longitude of languages and S-ratio. East longitude of languages are obtained from WALS database. In this Figure, blue dots correspond OV languages and red dots correspond VO languages. Most of languages in 100-150 east longitude (East Asian languages) have high S-ratio. There are several outliers in this Figure. Some of them will be explained in section 5.

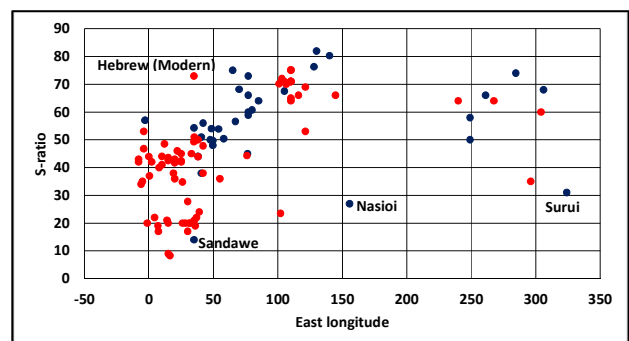


Figure 1: East longitude of languages and S-ratio

Table 2: Word Order of languages and S-ratio

NO: No dominant order

WO	language	S-ratio
VO	Aka	8.30
VO	Kongo	9.00
NO	Lese	11.00
OV	Sandawe	14.00
NO	Afrikaans	16.18
VO	Igbo	17.00
VO	Kinyarwanda	17.00
VO	Maasai	19.00
VO	Hausa	19.00
VO	UMbundu	20.00
VO	Tswana	20.00
VO	Mooré	20.00
VO	Luganda	20.00
VO	Bemba	20.00
VO	Shona	20.00
VO	Mbere	21.00
VO	Hadza	21.00
VO	Yoruba	22.00
VO	Chaga	22.00
VO	Malay	23.50
VO	Swahili	24.00
OV	Nasioi	27.00
VO	Zulu	27.79
OV	Surui	31.00
NO	Belorussian	33.00
VO	Arabic (Moroccan)	34.00
VO	Estonian	34.81
VO	Karitiána	35.00
VO	Baule	35.00
VO	Polish	36.00
VO	Komi-Zyrian	36.00
VO	Ewe	37.00
OV	Adyghe (Abzakh)	38.00
VO	Serbian-Croatian	38.00
VO	Arabic (Modern Standard)	38.00
NO	German	39.00
VO	Norwegian	40.00
NO	German	41.00
VO	Danish	41.00
VO	Hungarian	41.71
VO	Bulgarian	42.00
VO	French	42.00
VO	Irish	42.00
VO	Finnish	42.45
VO	Slovene	42.52
NO	German	43.00
NO	Dutch	43.00
VO	Czech	43.00
VO	Portuguese	43.00
VO	Slovak	43.00
VO	Swedish	43.63
VO	Russian	43.91
VO	English	43.98
NO	Dutch	44.00
OV	Amharic	44.00
VO	German	44.00
VO	Kashmiri	44.30
OV	Malayalam	45.00
VO	Romanian	45.00

WO	language	S-ratio
VO	Ukrainian	45.00
VO	Greek (Modern)	46.00
VO	Spanish	46.75
VO	Arabic (Modern Standard)	47.80
OV	Tatar	48.00
VO	Italian	48.51
VO	Hebrew (Modern)	49.26
OV	Tatar	49.70
OV	Pima Bajo	50.00
OV	Chuvash	50.00
VO	Arabic (Lebanese)	50.00
VO	Arabic (Syrian)	50.00
OV	Bashkir	50.40
OV	Adyghe (Abzakh)	51.00
VO	Hebrew (Modern Ashkenazic)	51.00
VO	Spanish	53.00
VO	Atayal	53.00
OV	Persian	53.90
VO	Azerbaijani	54.00
OV	Turkish	54.29
OV	Karachay-Balkar	56.00
OV	Urdu	56.60
OV	Basque	57.00
OV	Pima Bajo	58.00
OV	Hindi	58.85
OV	Hindi	60.00
VO	Guarani	60.00
OV	Uyghur	60.70
OV	Nepali	64.00
VO	Mandarin	64.00
VO	Chontal Maya	64.00
VO	Chumash (Barbareño)	64.00
VO	Mandarin	65.00
OV	Hindi	66.00
OV	Kiowa	66.00
VO	Hakka	66.00
VO	Chamorro	66.00
NO	Cheyenne	67.00
OV	Khalkha	67.50
OV	Apalai	68.00
OV	Kazakh	68.20
VO	Amis	69.00
NO	Ticuna	70.00
VO	Vietnamese	70.00
VO	Thai	70.19
VO	Khmer	71.00
VO	Mandarin	71.00
VO	Mandarin	71.00
VO	Mandarin	71.00
VO	Mandarin	71.00
VO	Lao	72.00
OV	Hindi	73.00
VO	Hebrew (Modern)	73.00
OV	Quechua (Huallaga)	74.00
OV	Khanty	75.00
VO	Mandarin	75.00
VO	Mandarin	75.20
OV	Korean	76.30
OV	Japanese	80.25
OV	Yakut	82.00

4 Local analysis

4.1 Ethiopia

Many Ethiopians speak Amharic or Oromo, both of them are OV type. Many languages in Africa are VO type. Table 3 shows the data from Africa. Ethiopian's S-ratio is higher than the S-ratio of other African populations.

Sandawe is OV type and has low S-ratio that is outlier.

Table 3: Data from Africa

country/region	area/population	language	WO	S-ratio
Ethiopia	Ethiopian	Amharic	OV	44.00
Ghana	Ghana	Ewe	VO	37.00
Cote d'Ivoire	Cote d'Ivoire	Baule	VO	35.00
Morocco	Moroccan	Arabic (Moroccan)	VO	34.00
South Africa	South Africa	Zulu	VO	27.79
Tanzania	Tanzanian	Swahili	VO	24.00
Nigeria	Yoruba	Yoruba	VO	22.00
Tanzania	Chagga	Chaga	VO	22.00
Gabon	Gabon	Mbere	VO	21.00
Tanzania	Hadza North	Hadza	VO	21.00
Angora	Angorese	UMbundu	VO	20.00
Botswana	Botswana	Tswana	VO	20.00
Burkina Faso	Burkina Faso	Mooré	VO	20.00
Uganda	Uganda	Luganda	VO	20.00
Zambia	Zambia	Bemba	VO	20.00
Zimbabwe	Zimbabwe	Shona	VO	20.00
Kenia, Tanzania	Masai	Maasai	VO	19.00
Nigeria	Hausa	Hausa	VO	19.00
Nigeria	Ibo	Igbo	VO	17.00
South Africa	African	Afrikaans	NO	16.18
Tanzania	Sandawe	Sandawe	OV	14.00
Congo	Mbuti	Lese	NO	11.00
Congo	Kongo	Kongo	VO	9.00
Congo	Biaka	Aka	VO	8.30

4.2 Basque

Basque is OV type and many of European languages are VO type. Table 4 shows the data from South Europe. Basque has highest S-ratio.

Table 4: Data from South Europe

country/region	area/population	language	WO	S-ratio
Spain	Basque	Basque	OV	57.00
Spain	Spanish (North)	Spanish	VO	53.00
Italy	Italian	Italian	VO	48.51
Spain	Spain	Spanish	VO	46.75
Greek	Greek	Greek (Modern)	VO	46.00
Romania	Romanian	Romanian	VO	45.00
Portugal	Portuguese	Portuguese	VO	43.00
Slovakia	Slovak	Slovak	VO	43.00
Slovenia	Slovene	Slovene	VO	42.52
France	Paris	French	VO	42.00
Hungary	Hungarian	Hungarian	VO	41.71
Croatia	Croat	Serbian-Croatian	VO	38.00

4.3 Turkey

Turkish is OV type. Table 5 compares languages Turkish and surrounding areas of it. Turkish is in second rank. Hebrew (Modern) spoken by Samaritan has highest S-ratio, that is outlier of the VO type. Other Israeli populations have middle level of S-ratio in this region. Azerbaijani, which is OV type, has also high S-ratio.

Table 5: Data from West Asia and East Europe

country/ region	area/ population	language	VO	S-ratio
Israel	Samaritan	Hebrew (Modern)	VO	73.00
Turkey	Turkish	Turkish	OV	54.29
Azerbaijan	Azerbaijani	Azerbaijani	OV	54.00
Israel	Ashkenazi	Hebrew (Modern Ashkenazic)	VO	51.00
Lebanon	Lebanon	Arabic (Lebanese)	VO	50.00
Syria	Druze	Arabic (Syrian)	VO	50.00
Israel	Israeli	Hebrew (Modern)	VO	49.26
Jordan	Jordan	Arabic (Modern Standard)	VO	47.80
Greek	Greek	Greek (Modern)	VO	46.00
Romania	Romanian	Romanian	VO	45.00
Ukraine	Ukrainian	Ukrainian	VO	45.00
Slovakia	Slovak	Slovak	VO	43.00
Slovenia	Slovene	Slovene	VO	42.52
Bulgaria	Bulgarian	Bulgarian	VO	42.00
Yemen	Yemenite	Arabic (Modern Standard)	VO	38.00

4.4 Russia

Table 6 shows Russian data. Two VO type languages (Russian and Komi Zyrian) speakers have low S-ratio.

Table 6: Data from Russia

country/ region	area/ population	language	VO	S-ratio
Russia	Yakut	Yakut	OV	82.00
Russia	Khanty	Khanty	OV	75.00
Russia	Balkars	Karachay-Balkar	OV	56.00
Russia	Kabardian	Adyghe (Abzakh)	OV	51.00
Russia	Bashkir	Bashkir	OV	50.40
Russia	Chuvash	Chuvash	OV	50.00
Russia	Tatar	Tatar	OV	49.70
Bashkortostan	Tatar	Tatar	OV	48.00
Russia	Russian	Russian	VO	43.91
Russia	Adyghe	Adyghe (Abzakh)	OV	38.00
Russia	Komi Zyriane	Komi-Zyrian	VO	36.00

OV type Adyghe speaking Adyghe has low S-ratio that is outlier.

4.5 Kashmir

Although many Indian languages are OV type, Kashmiri is VO type. Table 7 shows Kashmiri and surrounding areas' data. Kashmir has lowest S-ratio.

Table 7: Data from Kashmiri and surrounding areas

country/ region	area/ population	language	VO	S-ratio
India	Manipur	Hindi	OV	73.00
India	Calcutta	Hindi	OV	66.00
Nepal	Nepali	Nepali	OV	64.00
India	Madras	Hindi	OV	60.00
India	Indian	Hindi	OV	58.85
Pakistan	Pakistani	Urdu	OV	56.60
Iran	Iranian	Persian	OV	53.90
India	Keralite	Malayalam	OV	45.00
India	Kashmir	Kashmiri	VO	44.30

4.6 East and South East Asia

Data from East and South East Asia are shown in Table 8. Japanese and Korean speakers have high S-ratio. On the other hand, OV language speakers in China (Kazakh, Khalkha and Uygur) have lower S-ratio than Mandarin speakers. Nasioi is also the outlier of OV language speakers.

Table 8: Data from East and South East Asia

country/ region	area/ population	language	VO	S-ratio
Japan	Japanese	Japanese	OV	80.25
Korea	Korean	Korean	OV	76.30
China	Chinese	Mandarin	VO	75.20
China	Han	Mandarin	VO	75.00
Lao	Laotian	Lao	VO	72.00
Cambodia	Cambodian	Khmer	VO	71.00
China	Hunan Province	Mandarin	VO	71.00
China	Shanghai	Mandarin	VO	71.00
Singapore	Chinese	Mandarin	VO	71.00
Taiwan	Taiwan	Mandarin	VO	71.00
Thai	Thai	Thai	VO	70.19
Vietnam	Vietnamese	Vietnamese	VO	70.00
Taiwan	Ami	Amis	VO	69.00
China	Kazak	Kazakh	OV	68.20
China	Mongolian	Khalkha	OV	67.50
China	Hakka	Hakka	VO	66.00
China	Taiwan	Mandarin	VO	64.00
China	Uygur	Uyghur	OV	60.70
Taiwan	Atayal	Atayal	VO	53.00
Papua New Guinea	Nasioi	Nasioi	OV	27.00
Malaysia	Malay	Malay	VO	23.50

4.7 Native Americans

Table 9 shows data from Native Americans. Top 5 languages are OV type or No dominant word order type (NO). Pima Bajo and Surui speakers are outlier of OV languages speakers in this region.

Table 9: Data from Native Americans

country/ region	area/ population	language	WO	S-ratio
Peru	Quechua	Quechua (Huallaga)	OV	74
Peru/Brazil	Ticuna	Ticuna	NO	70
Brazil	Apalaí	Apalaí	OV	68
USA	Cheyenne	Cheyenne	NO	67
USA	Plains Indian	OV dominant	OV	66
Mexico	Maya	Chontal Maya	VO	64
USA	Southwest Indian	VO dominant	VO	64
Brazil	Guarani	Guaraní	VO	60
USA	Pima Arizona	Pima Bajo	OV	58
Mexico	Pima Mexico	Pima Bajo	OV	50
Brazil	Karitiana	Karitiãna	VO	35
Brazil	R Surui	Surui	OV	31

5 Examination of the outliers

Local analysis shows that there are several outliers. Table 10 shows the number of speakers of these outlier languages that are obtained from Wikipedia. Except for OV languages in China (Kazakh, Khalkha and Uyghur), the number of speakers of outlier languages are rather small. This fact may affect the S-ratio.

Table 10: Number of speakers of outlier languages

Area/population	Language	WO	Number of speakers
Sandawe	Sandawe	OV	60K
Samaritan	Hebrew (Modern)	VO	818
Adygei	Adyghe (Abzakh)	OV	575K
Kazak (in China)	Kazakh	OV	22M
Mongolian (in China)	Khalkha	OV	3M
Uyгур (in China)	Uyghur	OV	10M
Nasioi	Nasioi	OV	20K
Pima Arizona	Pima Bajo	OV	650
Pima Mexico	Pima Bajo	OV	650
R Surui	Surui	OV	1,000

6 Conclusion and Future Works

We have investigated the relation between word order of Object and Verb (OV vs VO) of languages and the relative frequency of serotonin transporter gene 5-

HTTLPR's allele S (S-ratio) of their speakers' population. By statistical analysis (t-test) for global data, we show "OV language speakers have high S-ratio and VO language speakers have low S-ratio".

S-ratio differs geographically. So, we have executed local analysis that shows similar results from the global analysis.

To clarify the reason why the above relation holds is the future work. Another future work is to clarify the reason why the outliers exist.

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Appendix Data used in the study

Country/region	Area/ population	Language	WO	S-ratio	Reference
Angora	Angorese	UMbundu	VO	20.00	(Gureyev et al., 2014)
Botsuwana	Botsuwana	Tswana	VO	20.00	(Minkov et al., 2015)
Burkina Faso	Burkina Faso	Mooré	VO	20.00	(Minkov et al., 2015)
Congo	Biaka	Aka	VO	8.30	(Murdoch et al., 2013)
Congo	Kongo	Kongo	VO	9.00	(Goldman et al., 2010)
Congo	Mbuti	Lese	NO	11.00	(Murdoch et al., 2013)
Cote d'Ivoire	Cote d'Ivoire	Baule	VO	35.00	(Gureyev et al., 2014)
Ethiopia	Ethiopian	Amharic	OV	44.00	(Minkov et al., 2015)
Gabon	Gabon	Mbere	VO	21.00	(Goldman et al., 2010)
Ghana	Ghana	Ewe	VO	37.00	(Gureyev et al., 2014)
Kenia, Tanzania	Masai	Maasai	VO	19.00	(Murdoch et al., 2013)
Morocco	Moroccan	Arabic (Moroccan)	VO	34.00	(Nasserdine et al., 2012)
Nigeria	Hausa	Hausa	VO	19.00	(Murdoch et al., 2013)
Nigeria	Ibo	Igbo	VO	17.00	(Murdoch et al., 2013)
Nigeria	Yoruba	Yoruba	VO	22.00	(Murdoch et al., 2013)
Rwanda	Rwandese	Kinyarwanda	VO	17.00	(Gureyev et al., 2014)
South Africa	African	Afrikaans	NO	16.18	(Esau et al., 2008)
South Africa	South Africa	Zulu	VO	27.79	(Chiao and Blizinsky, 2010)
Tanzania	Chagga	Chaga	VO	22.00	(Murdoch et al., 2013)
Tanzania	Hadza North	Hadza	VO	21.00	(Gureyev et al., 2014)
Tanzania	Sandawe	Sandawe	OV	14.00	(Murdoch et al., 2013)
Tanzania	Swahili	Swahili	VO	24.00	(Gureyev et al., 2014)
Uganda	Uganda	Luganda	VO	20.00	(Minkov et al., 2015)
Zambia	Zambia	Bemba	VO	20.00	(Minkov et al., 2015)
Zimbabwe	Zimbabwe	Shona	VO	20.00	(Minkov et al., 2015)
Cambodia	Cambodian	Khmer	VO	71.00	(Murdoch et al., 2013)
China	Chinese	Mandarin	VO	75.20	(Chiao and Blizinsky, 2010)
China	Hakka	Hakka	VO	66.00	(Murdoch et al., 2013)
China	Han	Mandarin	VO	75.00	(QIAO et al., 2007)
China	Hunan Province	Mandarin	VO	71.00	(Goldman et al., 2010)
China	Kazak	Kazakh	OV	68.20	(QIAO et al., 2007)
China	Mongolian	Khalkha	OV	67.50	(QIAO et al., 2007)
China	Shanghai	Mandarin	VO	71.00	(Goldman et al., 2010)
China	Taiwan	Mandarin	VO	64.00	(Murdoch et al., 2013)
China	Uyghur	Uyghur	OV	60.70	(QIAO et al., 2007)
Japan	Japanese	Japanese	OV	80.25	(Chiao and Blizinsky, 2010)
Korea	Korean	Korean	OV	76.30	(QIAO et al., 2007)
Lao	Laotian	Lao	VO	72.00	(Murdoch et al., 2013)
Malaysia	Malay	Malay	VO	23.50	(Mohamed Saini et al., 2014)
Papua New Guinea	Nasioi	Nasioi	OV	27.00	(Murdoch et al., 2013)
Singapore	Chinese	Mandarin	VO	71.00	(Gureyev et al., 2014)
Taiwan	Ami	Amis	VO	69.00	(Murdoch et al., 2013)
Taiwan	Atayal	Atayal	VO	53.00	(Murdoch et al., 2013)
Taiwan	Taiwan	Mandarin	VO	71.00	(Gureyev et al., 2014)
Thai	Thai	Thai	VO	70.19	(Minkov et al., 2015)
Vietnam	Vietnamese	Vietnamese	VO	70.00	(Minkov et al., 2015)
Austria	German	German	NO	43.00	(Gureyev et al., 2014)
Belarus	Belorussian	Belorussian	NO	33.00	(Gureyev et al., 2014)
Belgium	Belgium	Dutch	NO	44.00	(Gureyev et al., 2014)
Bulgaria	Bulgarian	Bulgarian	VO	42.00	(Gureyev et al., 2014)
Croatia	Croat	Serbian-Croatian	VO	38.00	(Noskova et al., 2008)
Czech	Czech	Czech	VO	43.00	(Gureyev et al., 2014)
Denmark	Dane (woman)	Danish	VO	41.00	(Gureyev et al., 2014)
Estonia	Estonian	Estonian	VO	34.81	(Chiao and Blizinsky, 2010)
Finland	Finnish	Finnish	VO	42.45	(Chiao and Blizinsky, 2010)
France	Paris	French	VO	42.00	(Gureyev et al., 2014)
Germany	German	German	NO	41.00	(QIAO et al., 2007)
Germany	Northern germany	German	NO	39.00	(Gureyev et al., 2014)
Greek	Greek	Greek (Modern)	VO	46.00	(Gureyev et al., 2014)

Country/region	Area/ population	Language	WO	S-ratio	Reference
Hungary	Hungarian	Hungarian	VO	41.71	(Chiao and Blizinsky, 2010)
Ireland	Irish	Irish	VO	42.00	(Murdoch et al., 2013)
Italy	Italian	Italian	VO	48.51	(Chiao and Blizinsky, 2010)
Netherlands	Dutch	Dutch	NO	43.00	(Gureyev et al., 2014)
Norway	Norwegian	Norwegian	VO	40.00	(Gureyev et al., 2014)
Poland	Gdańsk	Polish	VO	36.00	(Gureyev et al., 2014)
Portugal	Portuguese	Portuguese	VO	43.00	(Gureyev et al., 2014)
Romania	Romanian	Romanian	VO	45.00	(Gureyev et al., 2014)
Slovakia	Slovak	Slovak	VO	43.00	(Gureyev et al., 2014)
Slovenia	Slovene	Slovene	VO	42.52	(Chiao and Blizinsky, 2010)
Spain	Basque	Basque	OV	57.00	(Mata et al., 2004)
Spain	Spain	Spanish	VO	46.75	(Chiao and Blizinsky, 2010)
Spain	Spanish (North)	Spanish	VO	53.00	(Mata et al., 2004)
Sweden	Swedish	Swedish	VO	43.63	(Chiao and Blizinsky, 2010)
Switzerland	Swiss	German	VO	44.00	(Minkov et al., 2015)
Ukraine	Ukrainian	Ukrainian	VO	45.00	(Gureyev et al., 2014)
United Kingdom	English	English	VO	43.98	(Chiao and Blizinsky, 2010)
Mexico	Chontal Maya	Chontal Maya	VO	64.00	(Murdoch et al., 2013)
Mexico	Pima Mexico	Pima Bajo	OV	50.00	(Murdoch et al., 2013)
USA	Cheyenne	Cheyenne	NO	67.00	(Murdoch et al., 2013)
USA	Pima Arizona	Pima Bajo	OV	58.00	(Murdoch et al., 2013)
USA	Plains Indian	Kiowa	OV	66.00	(Hu et al., 2006)
USA	SF Chinese	Mandarin	VO	65.00	(Murdoch et al., 2013)
USA	Southwest Indian	Chumash (Barbareño)	VO	64.00	(Hu et al., 2006)
Guam	Micronesian	Chamorro	VO	66.00	(Murdoch et al., 2013)
Bashkortostan	Tatar	Tatar	OV	48.00	(Gureyev et al., 2014)
Russia	Adygei	Adyge (Abzakh)	OV	38.00	(Murdoch et al., 2013)
Russia	Balkars	Karachay-Balkar	OV	56.00	(Gureyev et al., 2014)
Russia	Bashkir	Bashkir	OV	50.40	(Noskova et al., 2008)
Russia	Chuvash	Chuvash	OV	50.00	(Gureyev et al., 2014)
Russia	Kabardian	Adyge (Abzakh)	OV	51.00	(Gureyev et al., 2014)
Russia	Khanty	Khanty	OV	75.00	(Murdoch et al., 2013)
Russia	Komi Zyriane	Komi-Zyrian	VO	36.00	(Murdoch et al., 2013)
Russia	Russian	Russian	VO	43.91	(Chiao and Blizinsky, 2010)
Russia	Tatar	Tatar	OV	49.70	(Noskova et al., 2008)
Russia	Yakut	Yakut	OV	82.00	(Murdoch et al., 2013)
Brazil	Apalai	Apalai	OV	68.00	(Bisso-Machado et al., 2013)
Brazil	Guarani	Guarani	VO	60.00	(Bisso-Machado et al., 2013)
Brazil	Karitiana	Karitiana	VO	35.00	(Murdoch et al., 2013)
Brazil	R Surui	Surui	OV	31.00	(Murdoch et al., 2013)
Peru	Quechua	Quechua (Huallaga)	OV	74.00	(Bisso-Machado et al., 2013)
Peru/Brazil	Ticuna	Ticuna	NO	70.00	(Murdoch et al., 2013)
India	Calcutta	Hindi	OV	66.00	(Gureyev et al., 2014)
India	Indian	Hindi	OV	58.85	(Chiao and Blizinsky, 2010)
India	Kashmir	Kashmiri	VO	44.30	(Murdoch et al., 2013)
India	Keralite	Malayalam	OV	45.00	(Murdoch et al., 2013)
India	Madras	Hindi	OV	60.00	(Gureyev et al., 2014)
India	Manipur	Hindi	OV	73.00	(Gureyev et al., 2014)
Iran	Iranian	Persian	OV	53.90	(Rashidi et al., 2018)
Nepal	Nepali	Nepali	OV	64.00	(Gureyev et al., 2014)
Pakistan	Pakistani	Urdu	OV	56.60	(Khan et al., 2018)
Azerbaijan	Azerbaijani	Azerbaijani	OV	54.00	(Minkov et al., 2015)
Israel	Ashkenazi	Hebrew (Modern Ashkenazic)	VO	51.00	(Murdoch et al., 2013)
Israel	Israeli	Hebrew (Modern)	VO	49.26	(Chiao and Blizinsky, 2010)
Israel	Samaritan	Hebrew (Modern)	VO	73.00	(Murdoch et al., 2013)
Jordan	Jordan	Arabic (Modern Standard)	VO	47.80	(Al-Eitan et al., 2014)
Lebanon	Lebanon	Arabic (Lebanese)	VO	50.00	(Gureyev et al., 2014)
Syria	Druze	Arabic (Syrian)	VO	50.00	(Murdoch et al., 2013)
Turkey	Turkish	Turkish	OV	54.29	(Chiao and Blizinsky, 2010)
Yemen	Yemenite	Arabic (Modern Standard)	VO	38.00	(Murdoch et al., 2013)

WO: Word order, OV: Object verb order, VO: Verb object order, NO: No dominant order