

SOUTH SIBERIAN SOUND SYMBOLISM

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0. Introduction

South Siberian Turkic languages are rich in sound symbolic subsystems, both in their lexica and in the productive morphophonology, but these systems remain to be adequately documented. This paper presents new field data on sound symbolism in two South Siberian Turkic languages: Tofa(lar) and Tuvan (including the unwritten Tsengel and Hovd dialects spoken in Mongolia). Sound symbolic word formation in these languages may be unique within the Turkic family for its productivity, its use of combinatorial possibilities, and its large paradigms of related words. Possible links between sound symbolic elements in Siberian Turkic and the practice of SOUND MIMESIS in nomadic life are discussed briefly. The data are situated within a comparative Altaic perspective and within a general model of sound symbolism (Hinton, et al. 1994).

1. Sound symbolism

Sound symbolism is used herein to denote a subcategory of IDEOPHONES, a broad class of language phenomena also referred to as PHONAESTHESIA, PHONETIC SYMBOLISM, ONOMATOPEIA, etc. While a rigorous definition or diagnostic of the ideophone has not yet been proposed, there does seem to be a consensus in the literature that ideophones are the representation of related classes of meanings through the use of common phonetic form(s). Ideophones have been claimed to denote properties such as sound, shape, size, distance, motion, color, and affective state. The scope of this paper is restricted to sound symbolic forms that denote sounds. As Vajda (2003) notes, we still lack a ‘universal definition’ of ideophones and related phenomena, and an understanding of basic questions about how and why ideophones develop and how they are related to onomatopoeia. Absent a comprehensive theory of ideophones and sound symbolism, it is safe to say that we are still essentially in the data collection stage, surveying the many languages which employ ideophones and looking for within-language and cross-linguistic patterns. The existence of ideophones is often cited as a possible exception and counter-example to Saussure’s (1915 [1986]) principle of the arbitrariness of linguistic signs (Allot 1995). The neutral view adopted here is simply that ideophones represent curious clusterings of form and meaning in individual languages, not providing any solid basis for speculation about possible universals or the role of iconicity in language design. In almost any language, one can uncover classes of phonetically similar words that share

[†] Data collected by the author in Tofalaria, Tuva and Mongolia in 1998-2003. Thanks to Valentina Süzükei, Kyzyl-Maadyr Simchit, Aleksandr Ondar, Afanasij Myldyk, Chaizu and Brian Donahoe for help in collecting and interpreting the data. Fieldwork was funded by a grant from the Volkswagen-Stiftung.

similar denotata, without subscribing to any particular theory of phonaesthesia or needing to speculate about possible universal properties of such forms.

Sound symbolism is typically manifested in correlations between phonemes and related denotata (e.g., English words denoting a loosely related class of impact sounds beginning with [kl]; e.g., click, clang, clink, clank, clunk, clickety-clack, clamber, cluck, clip-clop, clomp, clash, clamor). Languages may also deploy special morphological processes to denote sounds. Hinton, et al. (1994) note a cross-linguistic tendency for sound symbolism to make use of reduplicative mechanisms (if the language in question has reduplication), a tendency that is clearly present in Siberian Turkic. The additional factor of vowel harmony in Turkic gives rise to a potentially very large repertoire of paradigmatically and thematically related forms, in which consonants remain constant and vowels change to express different, though related, semantic content (see section 3).

2. Tuvan sound symbolism

Tuvan (Anderson and Harrison 1999, Harrison 2000) has many forms that could be considered sound symbolic, both in the lexicon and in the productive morphology. Lexicalized (unproductive) sound symbolic forms may be found in abundance in Tuvan riddles, a genre known as [*tuuvuzuuq*]. Since the genre is archaic (different from contemporary speech) and obtuse, speakers interpret differently the meaning of sound symbolic words found in riddles (thus we list alternative definitions proposed by native speakers below). It should be noted that in some context other than a specific riddle, the interpretation of these may differ. The set of meanings given here is thus representative, not exhaustive for these words.

- | | | |
|-----|--------------------------|---|
| (1) | <i>toq toq ~ taq taq</i> | a knocking sound |
| | <i>xuur xuur</i> | 1. the sound of fire
2. a sudden, plosive, rustling sound, like the sound of wings beating up when a grouse suddenly flies up out of the grass |
| | <i>suuγ suuγ</i> | 1. sound of the wind or whistle
2. a movement, quick and darting, like the way a swallow flies |
| | <i>qoγ qoγ</i> | 1. imitation of an abrupt sound (voice, scream)
2. call of the wild deer |
| | <i>buuzur buuzur</i> | 1. sound of falling raindrops or snowflakes
2. denoting very small things, little pieces, little beads, etc. and sounds made by them |
| | <i>tfuuzuur tfuuzuur</i> | 1. sound of thunder
2. the sound of the tree tops moving, swaying, cracking, or snapping as a result of bears marking the trees by clawing at them and by scratching their backs up against them |

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<i>tfindij tfindij</i>	<ol style="list-style-type: none"> 1. the sound your feet produce when you walk in a bog 2. refers to the way a bear walks—lumbering, swaying or rocking from side to side (like a great big fat wrestler)
<i>tuj tuj</i>	<ol style="list-style-type: none"> 1. very high sound, scream or high pitched voice 2. a quick, sharp repeated sound 3. a coquettish giggle, a tee-hee
<i>xap xap</i>	<ol style="list-style-type: none"> 1. someone walking along spanking his leather boots with a stick or switch or riding crop 2. sound of walking and clapping or slapping your hands on your body
<i>sap sajtuq ~ sup sujtuq</i>	<ol style="list-style-type: none"> 1. imitation of a gopher's scream 2. a chirring sound made by a rabbit or hare 3. chirping or calling of a magpie 4. squeaking of a mouse

The above make use of common and fully productive types of reduplication found in Tuvan: (i) full reduplication, and (ii) CVp- reduplication (*sap sajtuq*). Both types are attested with limited productivity across Turkic and Altaic, especially CVp- reduplication which is fully productive across several word classes in Tuvan (e.g., *borbaq* 'round' > *bop borbaq* 'very round') but in other Turkic languages restricted to a closed class of modifiers, if present at all (Uzbek *tap taqur* 'completely bald', Tofa *sap saruy* 'bright yellow').

The larger and more typologically significant class of Tuvan sound symbolic forms makes use of a type of reduplication that is rare and atypical for Turkic, one not attested, so far as we know, elsewhere in the family. This type entails full reduplication with vowel replacement, and we illustrate it here with a few forms from the non-sound symbolic lexicon (in each pair given, the first word is the base, the second the reduplicant).

(2) <i>inek anaq</i>	cows and the like
<i>børy baru</i>	wolves and the like
<i>teve tava</i>	camels and the like
<i>aruu uru</i>	bees and the like
<i>ulu aluu</i>	dragons and the like

The rule for forming Tuvan ameliorative / expressive reduplicants is to replace the first syllable vowel with [a], unless it is already [a], in which case it gets replaced with [u]. Further, all post-initial vowels are readjusted to conform to the two systems of vowel harmony found in Tuvan. Backness harmony requires all vowels in a word to agree in backness. Rounding harmony, a distinct system, requires a high vowel to be rounded when the preceding syllable contains any round vowel, and bans rounded vowels in post-initial syllables except where motivated by harmony.

Sound symbolic forms often take advantage of mechanisms of reduplication. Thus *koŋgur* and *kaŋgur* can stand alone as individual sound symbolic forms with related meanings ('ringing sounds'), but forms like *koŋgur-kaŋgur* are also found. Similarly *solur* and *salur* each may stand alone to indicate a sound of blabbering, while the (quasi) reduplicated expression *solur salur* means 'blabbering on and on.' But sound symbolic forms are not always reduplicated, and more frequently appear as single lexical items. In this context they may be said to exist in paradigm-like classes of words, where the consonants remain the same and vowels are substituted for different nuances of meaning.

Within such paradigms, Tuvan takes advantage of the many combinatory possibilities afforded by its vowel system. Given the eight vowel system of Tuvan (front vowels [i y e ø], back vowels [ʉ u a o]) there are eight possibilities for any two-syllable word, all conforming to the restrictions of the above-noted patterns of vowel harmony. In a typical paradigm of related forms which share consonants but differ in their vowels, not all possible combinations will be attested. For example, though low unrounded vowels may occur in post-initial syllables, they do not appear in these forms, so words like CaCa are unattested. The following table contrasts vowel combinations found in the sound symbolic (SS) lexicon as opposed to those found in the general lexicon.

(3)

1 st syllable	2 nd syllable vowel		
	<i>attested in SS</i>	<i>possible, but unattested in SS</i>	<i>impossible due to vowel harmony</i>
<i>i</i>	<i>i</i>	<i>e</i>	<i>y, ø</i>
<i>y</i>	<i>y</i>	<i>e</i>	<i>i, ø</i>
<i>e</i>	<i>i</i>	<i>e</i>	<i>y, ø</i>
<i>ø</i>	<i>y</i>	<i>e</i>	<i>i, ø</i>
<i>ʉ</i>	<i>ʉ</i>	<i>a</i>	<i>u, o</i>
<i>u</i>	<i>u</i>	<i>a</i>	<i>ʉ, o</i>
<i>a</i>	<i>ʉ</i>	<i>a</i>	<i>u, o</i>
<i>o</i>	<i>u</i>	<i>a</i>	<i>ʉ, o</i>

Thus, of the sixteen combinatory possibilities for any two-syllable word, eight are available for use in sound symbolic words and thus form a kind of paradigm of related forms. We found speakers' judgments to be fairly consistent as to what forms are attested, possible but unattested, or not possible .

The following nine paradigm sets are among those most commonly used to express sound symbolism, and at the same time the most complete (having the most members, with a minimum of four). Data were collected from six speakers during fieldwork in Tuva and western Mongolia in 2001-2003. Each speaker was exposed to the entire data set and asked (i) whether they had heard the word, (ii) if so, what it denoted, (iii) if they had not heard it, did they consider it to be a possible word, (iv) if so, what it could denote. Definitions are condensed below to give the most representative meanings. In the data sets below, the † sign indicates that a form that is unattested but judged by at least

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three speakers to be a possible word and one having a meaning related to the paradigm. The * sign indicates forms judged by speakers to be impossible.

Metallic impact sounds may be symbolized with [k] [ŋ]

- (4) *kiŋgir-* 1. falling and clanging noise
2. a small bell ringing
kyŋgyr- †
keŋgir- †
køŋgyr- †
koŋgur- 1. sound of an empty, round object ringing, e.g., a big bell
2. sound like a big pile of logs or rocks toppling over
kaŋgur- ringing sound
kuŋgur- †
kuŋgur- metal(lic) ringing sound

Turbulence sounds may be symbolized with [x] [l]

- (5) *xilir-* fluttering, flapping as a skirt or flag in the wind
xylyr- 1. the whine of a propellor
2. sound of a bat's wings
xelir- *
xølir- sound of someone stepping and falling into a hole
xalur- sound of paper rustling
xolur- similar to *xølir-*
xuulur- †
xulur- *

Friction and locomotion sounds may be symbolized with [d] [l]

- (6) *dildir-* 1. sound of feet shuffling quickly
2. (possibly) to slurp
dyldyr- *
deldir- *
døldyr- sound of feet shuffling slowly
daldur- sound of something thudding heavily along, e.g., a big horse
doldur- same as *døldyr-*
duldur- sound like a big bird's wings flapping
duldur- *

Speaking, mouth-related and water sounds may be symbolized with [ʃ] [l]

- (7) *ʃilir-* *
ʃylyr- 1. sound of a nearly dried up river
2. sound of mucous (snot) being blown out of the nose
ʃelir- *

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<i>ſølyr-</i>	1. sound of something falling loudly, e.g., a bundle of wood 2. a sound of loud slurping
<i>ſalur-</i>	1. sound of dry leaves or grass rustling 2. to rustle (e.g., paper in the wind) 3. sound of something thin and dry
<i>ſohur-</i>	1. sound of water as in a babbling brook 2. to be a blabbermouth 3. to blabber
<i>ſulur-</i>	same as <i>ſalur-</i>
<i>ſulur-</i>	to chatter or blab

As noted above, at least some of these forms may be conjoined as base-reduplicant pairs:

(8) *ſohur ſalur* blabbering on and on

These forms often appear with suffixed morphological material /-A:ʃ/. The meanings here are slightly different, the additional sibilant [ʃ] may further reinforce the association with water sounds.

(9) <i>ſilireef-</i>	†
<i>ſylyreef-</i>	river sounds, e.g., water trickling
<i>ſelireef-</i>	†
<i>ſølyreef-</i>	river sounds, e.g., water trickling
<i>ſaluraaʃ-</i>	river sounds, e.g., water trickling
<i>ſohuraaʃ-</i>	river sounds, e.g., water trickling
<i>ſuluraaʃ-</i>	1. sound of paper rustling 2. sound of a shallow river flowing
<i>ſuluraaʃ-</i>	river sounds, e.g., water trickling

Metallic sounds may be symbolized with [ʃ] [ŋ]

(10) <i>ſiŋgir-</i>	sound of stirrups jangling
<i>ſyŋgyr-</i>	†
<i>ſeŋgir-</i>	*
<i>ſøŋgyr-</i>	a metal(lic), ringing sound
<i>ſaŋgur-</i>	a metal(lic), ringing sound
<i>ſoŋgur-</i>	†
<i>ſuŋgur-</i>	sound of stirrups jangling (same as <i>ſiŋgir-</i>)
<i>ſuŋgur-</i>	a metal(lic), ringing sound

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Squeaking or crunching sounds may be symbolized with [k] [j] ~ [q] [j]

- (11) *kijirt* 1. sound of new leather squeaking, e.g., a saddle or new boots
2. sound of a thin layer of snow being walked on
- kyjyrt* †
- kejirt* sound of new leather squeaking
- køjyrt* sound of crunching, e.g., a person chewing a carrot, candy or hard-dried cheese curd (Tuvan *arʒuu*)
- qajurt* sound of deep snow (when walked upon)
- qojurt* sound of deep snow (when walked upon)
- qujuurt* 1. sound of deep snow (when walked upon)
2. sound of a new leather saddle
3. sound of a chair squeaking
- qujurt* *

Impact or breaking sounds may be symbolized with [k] [z] ~ [q] [z]

- (12) *kizirt* 1. sound of wood breaking
2. sound of a bone breaking
- kzyrt* †
- køzyrt* †
- kezirt* *
- qazuurt* sound of large rocks (falling, etc.)
- qozurt* †
- quzurt* sound of rocks (falling, etc.)
- quzurt* †

Breaking sounds may be symbolized with [d] [r] ([s])

- (13) *dirs* sound of a glass breaking (e.g., when hot tea is poured into it)
- dyrs* *
- ders* *
- dørs* sound of a gun firing from afar
- dars* sound of a balloon bursting
- dors* †
- duurs* sound of a twig breaking underfoot
- durs* *

Friction / impact sounds may be symbolized with [ʃ] [ʃ] (a less productive paradigm)

- (14) *ʃiʃ* sound of a bullet whistling
- ʃyʃ* sound of air escaping when you open a bottle of carbonated drink

<i>seʃ</i>	†
<i>søʃ</i>	†
<i>saʃ</i>	sound of a fist hitting a body
<i>soʃ</i>	†
<i>suʃ</i>	†
<i>ʃuʃ</i>	†

Patterns relating to possible universals of sound symbolism are only weakly discernable in these data. Hinton, et al. (1994:4) note a cross-linguistic tendency for high front vowels to denote small(er) objects. In Tuvan, we see a slight tendency for high front vowels to denote higher pitched sounds or sounds generated by smaller objects: Compare *kingir*- ‘a small bell ringing’ and *kongur*- ‘an empty, round object ringing, e.g., a big bell’. Similarly, *kijirt* ‘sound of a thin layer of snow being walked on’ contrasts with *qajurt* ‘sound of deep snow (when walked upon).’ Another weak pattern is that high front vowels may denote more rapid sounds, e.g., *dildir*- ‘sound of feet shuffling quickly’; vs. *doldyr*- ‘sound of feet shuffling slowly’, and *daldur*- ‘sound of something thudding heavily along’. The possible universal status of these or any other sound symbolic forms is disputed; clearly more data must be collected from more languages before a strong hypothesis may be advanced.

3. Sound mimesis in the life of nomadic herders

A related category to sound symbolism is SOUND MIMESIS, a term borrowed from the ethnomusicology literature and referring to ways speakers ‘imitate and interact with the natural acoustic environment’ (Levin 1999). The typology of Hinton, et al. (1994:3) dubs these ‘imitative sounds symbolism.’ Mimesis is found across the Altai-Sayan region, noticeably in aspects of performative art but even more commonly in everyday hunting and herding activities. Tuvan speakers have many techniques for imitating and stylizing ambient sounds, including water sounds, wind sounds, wild animal sounds, bird calls, domestic animal sounds, the clatter of rocks sliding down a mountainside, and the crash of a tree falling in the forest. Mimesis is also used passively: Subtle sounds made by water, snow, birds, marmots, crickets, and yaks are named, classified and interpreted by Tuvan herders to predict changes in the weather.

Tuvan throat singing or overtone singing (van Tongeren 2002) is perhaps the most well-known example of sound mimesis. Throat singers can deploy a particular style to mimic the sound of the rhythmic clanging of horse stirrups or the burbling sound of water flowing in a brook (Levin 1999). Less well-known examples are Tuvans’ everyday use of hunting calls and animal domestication songs. Tuvan hunter-herders become highly skilled at mimicking and stylizing the calls of various birds, wild boar, bears, marmots, rabbits, snakes, crickets, gophers, elk, wolves, and the like. These calls may be deployed to distract, scare off or lure both prey and predators. They also have a totemic and performative aspect: Hunters may use the sound to refer to the animal (especially if there is a taboo associated with an animal) and upon return from a hunt may entertain the family with stories of their hunting adventures embellished with animal sounds. Tuvans

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regard animal sound mimesis as an important tool for the successful hunt. Many sounds that begin as purely mimetic eventually find their way into the language itself: For example, new verbs may be readily formed from mimetic words, and Tuvan stories and anecdotes often give an explicit folk-interpretation of actual words the animal is saying (the Tuvan rabbit chirring is said to chant, “I’m shamanizing, shamanizing to bring snow,” just as in English the owl is construed as hooting, “Who?”).

Tuvan herders have a large repertoire of animal domestication songs, which may be defined as stylized (sung) renditions of animal sounds intended to evoke a desired mental state in an animal. For example, if a yak cow must be persuaded to nurse a calf that is not her own, a particular song is sung to her. The animal calls discussed above, like other imitative sound symbolic forms, ‘utilize sound patterns outside of conventional speech and are difficult to portray in writing’ (e.g., the IPA) (Hinton, et al. 1994:3). Domestication songs, by contrast, are more speech-like, made up of real phonemes arranged into syllables and sung to a melody. These are used on a daily basis by the Tuvans in Tsengel sum and Hovd sum in Western Mongolia, and in the Republic of Tuva. Their intended purposes include making an animal calm down, stand still, feed a calf that is not its own, allow itself to be milked, ridden, shorn, treated for sickness, etc.

When Tuvan herders talk about these songs, they often explicitly claim that the songs are sound mimetic, either a close imitation of the animal’s own call or a more stylized form. Some consultants claim the songs are not (or only minimally) sound mimetic, but are merely a specific animal-directed song form that is known to have the desired calming effect on the relevant animal. All consultants interviewed agreed that these are not like regular songs sung for human entertainment; in fact, when asked to sing these songs outside the immediate presence of the relevant animal, most declined. A full investigation of the songs will require further research and a transcription of melodies and other prosodic qualities. We reproduce here just the syllables and phonemes, not the melody of the songs. Songs are labeled according to animal and function; for example, yak 1 is sung to calm a yak in a variety of situations, while yak 2 is sung most specifically to persuade a female to nurse a calf that isn’t her own, or while teaching a calf to nurse.

(15) <u>song type</u>	<u>song syllables</u> ¹
yak 1	<i>xor xor xor xor xor xor</i>
yak 2	<i>kurve: kurve: kurve: kurve:</i>
sheep 1	<i>totpa totpa totpa totpa totpa totpa</i>
sheep 2	<i>tojyu tojyu tojyu tojyu tojyu tojyu</i>
goat 1	<i>tfe tfe tfe tfe tfe tfe tfe tfe</i>
mare 2	<i>xure: sal sal sal sal sal xure: xure: sal sal sal</i>
camel 1	<i>tfuq tfuq tfuq</i>

While sound mimesis is not a strictly linguistic phenomenon, it overlaps in form, function and cultural context with sound symbolism. In the life of nomadic herders,

¹ Sung by D. Hoyuk, Tserenedimit and others in Mongolia, June 2000-02. Melodies not transcribed here.

mimesis may have provided an adaptive advantage by allowing them to decode and manipulate the environment (e.g., predict the weather, lure prey, corral a herd, increase milk production). The skilled use of sound symbolism and mimesis in Tuvan constitutes a cultural adaptation to the local soundscape for practical purposes such as hunting, forecasting weather, and domesticating animals. Since we do not yet have a comprehensive theory of sound symbolism, we should not rule out possible cross-influences among the practice of sound mimesis in the daily life of nomadic herders and the influence this may have (had) on the presence of sound symbolism in the language. We include it here to suggest the possibility of a two-way interface between linguistic sound-symbolic systems found in Siberian languages and everyday, skilled interactions with the soundscape practiced by Siberian peoples. These ancient practices are clearly a promising arena for further research, one that will provide insight into Siberian prehistory.

4. Tofa(lar) sound symbolism

Tofa(lar) (Rassadin 1989, Anderson and Harrison in preparation) sound symbolic forms represent a reduced system in comparison to that of Tuvan, one in which the denotata of phonetically similar words are less unified. This may be due to the advanced moribund state of the language, the loss or lack of development of story genres, the decline of traditional reindeer herding and hunting-gathering activities, or some combination of these and other reasons. Since Tofa is closely related to and cognate with Tuvan, its sound symbolic words provide a useful point of comparison.

Water, rustling and a variety of other sounds may be symbolized by [ʃ] ~ [s] with [l] and/or [r].

(16) <i>ʃuuu</i>	a rain sound
<i>ʃuuula-</i>	to make rain sounds
<i>ʃuuulaf-</i>	to make rain sounds
<i>ʃyyr</i>	a noise, din, or buzz (=Russian [<i>ʃumofka</i>])
<i>ʃaala-</i>	to make water or river sounds
<i>ʃajuula-</i>	1. to make a whistling wind sound 2. (to have or speak with) a strong (loud) voice
<i>ʃay</i>	(a) noise (unspecific)
<i>ʃuulura-</i>	to rustle (as leaves)
<i>ʃalura-</i>	to rustle (as leaves)
<i>ʃart</i>	blacksmith sounds
<i>ʃartuula-</i>	to make blacksmith sounds (cf. Tuvan <i>ʃartuula</i> ‘grasshopper’)
<i>sartuula-</i>	to squeak, as snow underfoot
<i>saltura-</i>	to rustle (as leaves)

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Creaking and avian sounds may be symbolized with [k] ~ [q] and [ŋ] or [g]

- (17) *qoŋgura-* to croak, cluck, chirp
quugura- to creak as a tree in the wind (cf. Tuvan *quugura-* ‘shout’)
quijurtula- to creak
qogzuura- to crunch something on the teeth
qoŋgura- to quack
qaŋgura- to cackle, to call (as a bird)

Various loosely related natural sounds may be symbolized with [k] ~ [q]

- (18) *qoola-* to rustle, to whistle (as the wind)
qorula- to burble
qorulaaf burbling
qàs- to crunch (as nuts)
qàsqaq a rocky slope
qarula- to croak or crow (as a bird) (cf. R. *karkatʲ*)

Some bird sounds may be symbolized with [tʃ]

- (19) *tʃirileer* to chirp
tʃiri tʃiri chirping
tʃiri yajnur to chirp

Some dog sounds may be symbolized with [h] plus a nasal

- (20) *ham ham* dog barking
hoŋ hoŋ dog barking

5. Turkic and Altaic context

On the whole, sound symbolism has not yet been thoroughly documented across the Turkic family, and no comparative typological data set has been assembled that would gather all the relevant data together in one place. Based on available data, we can find parallels to the Tuvan and Tofa systems, though no documented system seems to have the rich combinatory properties found in Tuvan. Turkish (Ido 1999, Jendraschek 2001) employs full reduplication for some sound symbolic forms.

- (21) *puttur puttur* sound of rapid footsteps
patur patur sound of footsteps
kytyr kytyr sound of crunching (while eating)
fuʃur fuʃur hiss (of burning [sic], running water)
tukur tukur sound of rattling
faʃur faʃur sound of splashing, rushing water
tʃangul tʃangul sound of harsh, broken speech; foreign / provincial accent
ʃapur ʃapur sound of smacking of lips

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A second type, referred to as ‘asymmetrically reduplicated’ forms (indicating a change in vowel quality), is more limited in its use: Ido (1999) notes only a very few forms, all with [a u] in the base and [u u] in the reduplicant.

- (22) *hapur hupur* sound of noisily gulping down food
sapur supur smacking of lips
hafur hufur crunching, crushing sound
takur tukur alternate tapping and knocking
katur kutur crunching

Thus, while Turkish may be said to have the same formal type of reduplication with vowel replacement and vowel harmony, it apparently fails to make use of the combinatory properties of vowels that yield the highly productive Tuvan system.

Azeri (Householder 1962) has small paradigms of related sound symbolic forms. Like the Tuvan forms, these share consonants and differ in their vowels. But the number of forms in a paradigm does not seem to exceed three:

- (23) *surulda-* gurgle, swish (of liquids)
farulda- roar, splash (of water)
forulda- roar, splash (of water), but louder & deeper than *farulda-*

Householder (1962) notes that in minimal pairs such as *supsup* ‘noise of something hitting water’ and *sapsap* ‘noise of something hitting water’ forms containing [a] simply denote a ‘louder’ version of the same sound. A very few related forms differ by two vowels: *xurxur* ‘rattle or crunch as of small stones’, *xarxar* ‘rattle or crunch of stones (but louder, bigger stones)’ [than those denoted by *xurxur*].

Uzbek (Dirks, undated) employs reduplicative ideophones:

- (24) *kurs kurs* crunching noises
kurt kurt munching or chewing noises
sap sap splashing noises
sarak sarak clanging noises

A few reduplicated forms make use of different vowels (the familiar [a] [i] ~ [u] [u] pattern), but there is no indication as to whether this is a productive process in Uzbek.

- (25) *baqir buqur* to boil, bubbling noisily
qasir qusur crashing or cracking noises
sarak suruk clanging noises

Finnish (Jarva 2003) reportedly has large classes of sound symbolic words that share consonants but differ in their vowels. This may be something akin to the combinatory system and paradigm groups described for Tuvan, especially as Finnish also employs vowel harmony. Jarva (2003) lists, for example, a group of fifteen words containing [k] [lk] sequences, e.g., *kalkahta-a*, *kilka-a*, *kolkutta-a*, and all denoting impact sounds (e.g., ‘a hammer against an anvil’, ‘an axe against wood’, etc.)

SOUTH SIBERIAN SOUND SYMBOLISM

Korean (Martin 1962), further afield (though possibly still within Altaic), is shown to deploy a large repertoire of sound symbolic forms. Although most of these do not involve reduplication, a few of the disyllabic forms cited seem to have alternate forms which differ only by their vowels. Martin does not indicate that this is a productive process, nor are these alternate forms found conjoined as base-reduplicant pairs.

- (26) *pasak* ~ *pesek* ‘rustle’
palak ~ *pelek* ‘suddenly; insistently’
kkam(c)cak ~ *kkum(c)cek* ‘being startled’.

6. Discussion

The highly productive and expressive system found in Tuvan for creating sound symbolic forms is novel within Turkic and Altaic. Tuvan (and to a lesser extent, Tofa) exploits (nearly) the full set of combinatory possibilities made available in the phonology. Tuvan thus has a potentially very large stock of sound symbolic words constructed along two dimensions. First, there is the identification of a set of consonants (usually two) with a particular type of sound (e.g., [k] [ŋ] denotes ringing, metallic sounds). The resulting paradigm is probably only a weak semantic grouping, and there is no reason to think that entirely unrelated sounds or concepts could not be added to this class. However, speakers have come to associate the two; this can be demonstrated by asking a native speaker, “If $C_1V_1C_2V_2$ were a word, what would it mean?” or even, “What kind of sound would it denote?” Speakers do have judgments, though not absolute, about what kinds of sounds potentially belong to the class represented by, for example, [k] [ŋ].

The second dimension is vowels, which (again, in a weak way) may be related to pitch (high vs. low pitch sounds) or size (large objects that make noise vs. small objects), and perhaps to a lesser degree to frequency (rapidly repeated sounds vs. single instances of sounds). Clearly there is also an element of language play here, as speakers seem to take pleasure in imagining the possible meanings of new words generated using this fixed-consonant and harmonic vowel combinatory mechanism. All of these are at best weak tendencies, but they serve to delimit the possibilities of such a combinatory system. The Tuvan and Tofalar sound symbolic systems illuminate the internal possibilities of these languages, their possible links to environmentally-grounded behavior (sound mimesis), and the range of possible sound symbolic systems in human language.

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