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Sean Ray
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# YGGUR AND THE POWER OF LANGUAGE: A LINGUISTIC INVENTION EMBEDDED IN A CZECH NOVEL 

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## 1. Introduction: Yggur in the novel

Michal Ajvaz (b. 1949) is a Czech writer with a penchant for mysterious languages and alphabets. Several pages of dialog in his novel Lucemburská zahrada (The Garden of Luxembourg, 2011] appear to be written in an incomprehensible mumbo jumbo called yggurština 'the Yggur language.'
What is the purpose of the Yggur language in Ajvaz's novel? My answer is that Ajvaz is warning his readers about the power of language, even when it is embedded in the "noise" of apparently random signals. At the same time Ajvaz challenges the reader to engage in a game to find out whether these signals have any significance. The message and the challenge are effective because they are delivered in a viable language that is both entirely within the reach of the human mind, yet maximally exotic. Yggur is a language, and it can be described by recourse to standard linguistic methods. I approach Yggur like a naturally-occurring human language, by examining its structure, and this in turn makes it possible to situate Yggur in relation to other languages, both natural and invented.
I begin with a summary of the novel with a focus on the appearance of Yggur in it. Section 2 undertakes a linguistic description of Yggur. Section 3 provides perspective from the spectrum of constructed languages and situates Yggur in terms of its structure, relationship to known languages, and purpose. Conclusions are offered in Section 4.
Ajvaz's novel Lucemburská zahrada opens with Paul, who teaches philosophy at a Parisian lycée, sitting in front of his computer on the first day of summer vacation to begin preparing his lectures for a course on Greek philosophy in the fall semester. Paul has put his hands on the keyboard, and just as he is about to type "plotinos" into the Google search field, he is distracted by the ringing of a telephone outside his window. As a result, he lifts his right hand and accidentally puts it down again one key to the left and therefore types "okitubis" instead. In response to his query, Google offers him a single hit: the
only page in the Internet that contains the word "okitubis" is a fragment of an unfinished novel by Donald Ross, a professor of mathematics, cybernetics, cognitive science and computer science at the University of Albany in upstate New York. A loner, Ross surprised his associates when he married Winnifred, one of his students, whose marital duties included typing out Ross' scientific papers and books, which he dictated to her at their home while pacing back and forth with a cup of coffee. Together with several colleagues, Ross created a second generation of advanced audio-animatronic figurines for Disneyland. Meanwhile, Winnifred got tired of serving as Ross's secretary and ran away from him. Not long thereafter, Ross's neighbors were surprised to see Winnifred again seated in front of the computer as Ross dictated to her. It turned out that while the real Winnifred was in Louisiana, Ross had replaced her with an audio-animatronic figurine that could do her work. Subsequently Ross died of a heart attack in his sleep and, in addition to various scholarly works, the first few pages of an unfinished fantasy novel, entitled Return from the Other Side, were found in his computer and uploaded to the Internet by his students. The novel takes the perspective of a character called the "Regent," the young ruler of a population under threat from an enemy that lives "on the other side." A group of the Regent's spies has just returned to report on the enemy. All of the narration in Ross's novel is presented in Czech (or, we must suppose, in English), whereas all of the dialog between the Regent and his spies is presented in the unknown Yggur language. There are in all 632 words of Yggur in the text (henceforth referred to as "the corpus"). "Okitubis" appears in the very last line of Ross's novel fragment, which looks like gibberish: "Ollude taggavadirr am lurr, uta ygorel okitubis ali byrraru nalagaddaru ollade uvimisirr ali uta ludunnaru ollade uggudumirr..."
Paul overcomes his distaste for fantasy novels and reads the fragment, which sends him off on a whole summer of mostly unpleasant adventures that not only prevent him from getting any of his lectures prepared, but put his marriage and even his life at risk. In the midst of these, Paul acquires a batteryoperated toy once sold to curious tourists in upstate New York, representing Ross pacing back and forth and dictating in Yggur to the audio-animatronic replica of Winnifred. Paul later gives the toy to a musician who wishes to include Yggur words in an opera that he is composing. As the summer comes to a close, Paul returns to the website that started the whole string of misadventures and discovers that Winnifred has located some clues to the meaning of Yggur among the possessions of her late husband, scanned them in and posted them to the site. These are a list of words and glosses and a partial sketch of the grammar. Paul looks through these items, and when he doesn't see "okitubis" among them, he gives up, closes the book on his misspent summer, and gets on with his life, and it seems that the reader should do the same.
The glossary and grammar sketch are appended to the novel, as if throwing down a challenge to the reader to see whether it is possible to decode Yggur.

Or is it the case that this appendix is merely a provocation invented by the author through the persona of Donald Ross, and that Yggur is merely babble? After all, Ajvaz's linguistic inventions in his other novels are clearly not meant to be interpreted as real languages. His Druhé město (2005) features books printed in an unknown script that have magical powers to connect the protagonist to a parallel world, but we never get more detail than the fact that there are strange hooked letters on the pages. Zlatý vék (2011b) includes several language-related fantasies. In one scene a thief is pursued while climbing along letters in a sign over a shop. Another scene is an encounter with farm implements set up against a wall that happen to spell out a Greek phrase. There is a lengthy description of a fictional island with a language that has highly unusual properties and a constantly evolving script likened to the billowing of sheets hung in the wind to dry. But again, no actual samples of a fictional language or script are offered.
Is Yggur a language? As Ajvaz himself states in an interview about Lucemburská zahrada (Kořinek) "Musíme mít ale také na paměti, že hrdina připouští i možnost, že to celé je jen profesorova mystifikace. Jestli čtenáre zajímá, jak to je, musi si na to prijijt sám" ("We also have to bear in mind that the protagonist allows for the possibility that it is all just a trick being played by the professor. If the reader is interested in finding out whether this is true, he must figure that out by himself.") This article takes up the challenge offered by Ajvaz to decode Yggur and discover the purpose of the language in the novel.

## 2. Yggur under the linguistic microscope

This section describes the documentation of the language as well as details of its phonology, morphology, lexicon and syntax that can be deduced from the available material.

### 2.1 Documentation of Yggur

The word lists and grammar notes in the novel's addendum seem intentionally designed to frustrate both Paul and the reader. There are three partial glossaries, and Ajvaz highlights their random nature by describing them as scribbled on the back of a Mormon pamphlet, the back of a brochure on rabies, and the top of a pizza box. The words are presented in no particular order, and are arranged such that they are hard to scan, with one word in Yggur, then a hyphen, then the Czech gloss, followed by a semicolon, and the next word, etc. as in Figure 1. A total of 282 words appear in these glossaries. Twenty of the words in the glossaries never appear in the text, and twenty-six of the words in the text, including "okitubis," are missing from the glossaries.
The grammar sketch, allegedly similarly scattered across the backs of receipts from a shop, a drugstore, and a tire service, and on the back of a flyer for a real estate agency, provides tables outlining the declension of nouns and
že; naddumirr - slavit; nalagadda - diamant; yl - než;
du, dun - ne, ne-; talubirr - myslet, vérit
Pak se Paul pustil do té Cásti slovniku, která byla na letáku varujícim pied vzteklinou:
gamirr - 2muchlat; rysirr - pojednávat; tanna - spolu; ali - a; amarra - déjstvi; viggumirr - tañit; yrun nový; sat - pro, na; latta - žena; yda - క̌těsti; gozgul vysoký; ydatirr - setkat se; ygyrama - melodie; anaragga

- zoufalstvi; da - co; mann - jeden; tabba - feec; tabu-
 mirr - vyprávét; bazel - který, kdo; riva - tak; salla -
džungle; vida - smysl, význam; tenirr - vézt; odd-beget džungle; vida - smysl, význam; tenirr - vézt; odd-beget
- desifrant; guddar - mily; mi - take; ydabudda - evan-- delifrant; guddar - mily; mi - take; ydabudda - evangelium; lagudda - územi; bagg - práce; baggan - továrna;
baggir - pracovat; syruma - palác; lom - mimo; variga baggir - pracovat; syruma - palác; lom - mimo; variga
- priležitost; yllara - noc; bunydirr - chtit; nylanirr -- pitležitost; yllara - noc; bunydirr - chtit; nylanirr -
plout; begge - nápis; balla - piseñ; ballamirr - zpivat; un - jestij; tuvor - zacátek; banavirr - pledstírat; bege -- jesti; tuvor - zacatek; banavirr - predstrat, bege kreslo; vatunirr - uprchnout; oll - před (Casově): udyr velký; bete - užz; ymirama - sloup; guddumirr - vlád. nout; ymudd - král; dur - cervený; ullu - ano: bet - u; lugamirr - vznáset se; sigest - bud zdráv (pozdrav); luna -oko; pammun - zrádce; lyn - vêta; lys - oblímatse; tyrumirr - probudit; vugirr - moci, smét; ymudda - královna; byg - ulice; dumurra - socha; dunirr - být; durre - rozhovor; $\sin$ - o; bullisirr - proniknout; bummug tẽžḱ́; millyra - zahrada; olunara - slast; byggadirr psát; monyla - pravda; mu - za; yr - nebo; yvin - ráno, ranni; byrull - konec; tan - s, nebo znak instrumentálu; ogirrima - zárivka; ullamor - magický; mullamirr - za-
padat; tuvorirr - zacit; megadan - omitka; milate - ska-
fandr; lava - les; dunad vug - možná; egirrunirr - lesknout se; ellori - vsichni; gadda - pordzka; byrullirr - konतit; senna - stín; girra - slunce; girrabadogs - svitání; sumirr - sloužit; tavabbirr - pozorovat; ulama pokoj; bet-lurrer - prímoìský; buddirr - vèstit; ludunna - hvėzda; kaveledd - opustèný; magguma - slovo; nysirr - Cist; og - z, znak genitivu; lugim - prázdný; madde vitr; byda - mnoho

Pri Ctení toho, co Ross napsal na letáky, se Paul obČas roz pomenul na nékteré ze slov, jež odřikávala postavička z hongkongské hračky a jež zaznéla ve zpさ̌vu, kterému na slouchal v Taorminê, slovo okitubis vకak nenaşel. Ještě̌ byla naděje, そ̌e bude mezi slovy, která Ross napsal na krabici od pizzy, a tak Paul pečliv' prǒetl i poslední Cást slovníku:
ollizim - nádraži; omigirr - zapomenout; koma - zá roveñ; umun - bâh; otuna - dûm; pal - jak; mir - jesteß
ili $-i ;$ ilypa - okno; purrunirr - zvitězit; ymiramagud ili - i; ilypa - okno; purrunirr - zvitézit; ymiramaguda

- sloupek; vallim - stat; lada - tvár; nulubirr - ozývat se; mulludumirr - zaniknout; byrull-vallimer - kone Ená zastávka; dallava - jih; uze - papir; vigg - tanec; ymid dirr - vérit; ulym - román; kamab - bfýf; nalygirr - být možné; omulada - klávesnice; sennirr - spát; danumir - jit; lomm - muž; nyd - po (̌asovè); bymilirr - malo vat, líit; dammirr - leżet; sen - sen; sotumirr - privola vat, volat; mullud - zaniklý; dumma - strop; glome - ná hle, najednou; patynna - kraj; mugemirr - zavizat; do - ackoliv; gulludirr - vzniknout, zrodit se; mutum - zlo; gun - laptop; lome - ackoliv; gulor - zaclona; igama promenáda; nyddum - pozdni; nyd-mutyrra - odpoledne lomm-neter - tramvaj; ogir - světlo; imilira - pták; san - ale; doddegirr - blikat; duggirr - drnčet; vanedynirr

Figure 1: Sample appearance of glossaries in the appendix to the novel
pronouns, the conjugation of verbs, and the formation of possessive and relative pronouns as well as participles and deverbal nouns.
While both the glossary and the grammatical sketch are clearly incomplete (further clues on the backs of other random pieces of paper were probably thrown away), there is enough material to translate over $90 \%$ of the text (see Appendix) and propose a linguistic analysis of Yggur. In another part of that interview from 2011, Ajvaz states that Yggur does not differ dramatically from known human languages: "yggurština má dost podobnou gramatickou strukturu jako třeba čeština a ani tvoření pojmů se neřídí nëjakým zvlášt' odlišným režimem" ("Yggur has a structure quite similar to that of, for example, Czech, and concepts are not organized according to some particularly unusual model"). This article takes up the challenge offered by Ajvaz to decode Yggur. We undertake a minimal examination of the phonology, morphology, lexicon, and syntax of Yggur, just enough to answer the question of whether Yggur functions as a "real" language.

### 2.2 Yggur Phonology

The grammatical sketch provides no description of Yggur phonology, so certain details such as placement of stress and intonation cannot be discovered. However, since Ross dictated his novel to Winnifred's audio-animatronic replica, it is reasonable to assume that the orthography approximates a phonological transcription. Starting from this assumption and based on an
analysis of the Yggur corpus, we can describe the vowel and consonant systems of the language.
Yggur has six vowels, presumably arranged according to the usual relative values of the letters that represent them, as in Table 1.

Table 1: Yggur vowels

|  | Front |  |  | Back |
| :--- | :---: | :---: | :---: | :---: |
| High | i |  | $y$ | u |
| Mid |  | e |  | 0 |
| Low |  |  | $a$ |  |

This system puts a high functional load on high vowels, including $y$, which, if it represents a high front rounded vowel, is somewhat typologically unusual. There is no indication of length, so we presume that Yggur does not have phonemic length for vowels. There are no diphthongs observed either. Vowel systems with five or six vowels are typologically "average", found in about $51 \%$ of the world's languages (Maddiesen Vowel Quality Inventories).
Yggur has twelve consonants, eight of which are obstruents that appear in voiceless vs. voiced pairs, as shown in Table 2.

Table 2: Yggur obstruents

|  | labial plosives | dental plosives | dental fricatives | velar plosives |
| :--- | :---: | :---: | :---: | :---: |
| voiceless | p | t | s | k |
| voiced | b | d | z | g |

The remaining four consonants are sonorants: the nasals $m$ and $n$, and the liquids $r$ and $l$. Yggur has no affricates and is missing a number of other common sounds that do appear, for example in Czech, such as: $f, h, c h, j$ (cf. corresponding International Phonetic Alphabet symbols: $\mathrm{f}, \mathrm{f}, \mathrm{x}, \mathrm{j}$ ). This modest inventory of twelve consonants places Yggur in the range of languages with "small" consonant inventories (containing six to fourteen consonants), accounting for about $16 \%$ of natural languages in the WALS atlas (Maddiesen Consonant Inventories).
Whereas vowels do not distinguish length, consonants do (assuming again that we take the orthography at face value). All of the plosive obstruents, except $k$, and all of the sonorants appear as both short and long consonants. Consonant length is apparently phonemic in Yggur, as evidenced by the minimal pairs (words that differ only in the length of a consonant) shaded in Table 3.
Syllable structure is relatively unconstrained, although it is unclear how the geminate consonants behave. Otherwise, we see that initial syllables can begin with a vowel or a consonant, final syllables can end with a vowel, a

Table 3: Short vs. long consonants in Yggur; minimal pairs are shaded

| Short <br> consonant | Example with short <br> consonant | Long (geminate) <br> consonant | Example with long <br> consonant |
| :--- | :--- | :---: | :--- |
| p | ilypa 'window' | pp | kuppun 'elevator' |
| b | tabirr 'decode' | bb | tabbirr 'say, speak' |
| t | itá 'when' | tt | latta 'woman' |
| d | madane 'hall' | dd | madde 'wind' |
| g | bege 'letter' | gg | begge 'sign' |
| m | lom 'past' | mm | lomm 'man' |
| n | tanada 'hour' | nn | tanna 'together' |
| r | yr 'or' | rr | yrr 'green' |
| l | salirr 'recall' | ll | salla 'jungle' |

consonant, or a geminate consonant, and medial syllables seem mostly to have CV structure.
Thus, Yggur has a fairly simple phonology. As Ajvaz has stated: "Jednotný tón yggurštiny je dán především tím, že v ní převažují znělé souhlásky nad neznělými a že se tam kromě zdvojených souhlásek nevyskytuji zádné souhláskové skupiny" ("The homogeneous tone of Yggur is primarily a result of the fact that voiced consonants predominate over voiceless ones and that aside from geminate consonants, there are no consonant clusters"). Here we need to make some small corrections. There is one word containing an initial consonant cluster, glome 'suddenly'; all imperative verb forms contain the cluster $s t$ (see Table 6); and both prefixation and compounding can bring consonant clusters together at morpheme boundaries, as shown in Section 2.3.

### 2.3 Morphology

The overall characteristics of Yggur morphology are typologically similar to those of Czech (cf. Jelínek 39). Yggur has both inflectional and derivational morphology, as well as compounding. The inflectional morphology is largely agglutinative and fairly well described in the addendum to the novel, which also gives a few hints to some types of derivation. However, most of the derivational morphology and all of the compounding has to be deduced from the glossary and corpus. No irregular inflections are observed, something that would be very unusual for a natural human language.

## Nominal inflection

Table 4 shows the inflection of nouns, with hyphens inserted to show the boundaries between stems and desinences. This table contains the same information as is found in the grammatical sketch in the novel, though it has been rearranged for readability. Note that the word gallida, which appears in both the grammatical sketch and in the corpus, does not appear in the glossary.

Table 4: Inflection of nouns ollizim 'train station', gallida '???', and byge 'board' (adapted from the appendix to the novel)

| Number | Case | Masculine | Feminine in -a | Feminine in -e |
| :--- | :--- | :--- | :--- | :--- |
| Sg | Nom | Ollizim | gallid-a | byg-e |
| Sg | Acc | ollizim-en | gallid-an | byg-en |
| Pl | Nom | ollizim-ori | gallid-aru | byg-emi |
| Pl | Acc | ollizim-orin | gallid-arun | byg-emin |

Yggur has grammatical gender, distinguishing one masculine declension and two feminine declensions, and gender is assigned to all nouns, including inanimate ones. The nominal endings distinguish Nominative case (listed in the novel's appendix as Nominative, Genitive, Dative, and Instrumental) vs. Accusative case and singular vs. plural. Accusative is marked by a final - $n$ in all declensions in both singular and plural. This minimal distinction of case is elaborated by over a dozen prepositions such as $o g$ 'from, Genitive' and tan 'with, Instrumental'. Plural is marked differently for each declension class: -ori vs. -aru vs. -emi. The sketch tells us that adjectives and participles have the same endings as nouns. Note also that there is a potential confound: if the only form one comes across of a noun is Accusative singular ending in -en, there is no way to guess whether the noun is masculine or feminine $-e$ declension. This type of ambiguity is not uncommon in natural human languages, of course. For example, in Czech (and several other Slavic languages) the Accusative plural ending is the same for many masculine inanimate and feminine nouns.
Table 5 shows the inflection of personal pronouns, which also appears in the grammatical sketch.
Table 5: Inflection of personal pronouns (adapted from the appendix to the novel)

| Person | Singular Nom. (Acc.) m., f. | Plural Nom. (Acc.) m., f. |
| :--- | :--- | :--- |
| $1^{\text {st }}$ | $u m u(n)$ | umuz(en) |
| $2^{\text {nd }}$ | $u m i(n)$ | umudez(en) |
| $3^{\text {rd }}$ | um(en), uma $(n)$ | umuzu(n) |

The personal pronouns all start with $u m$-, mark the Accusative case with -(e) $n$, and distinguish gender only in the third-person singular. The sketch further mentions that possessive pronouns are formed by adding -(e)go and that relative pronouns are formed by adding -(e)s. Both types of pronouns appear in boldface this example:
Ali edelugg-udelu ... tub-emin og vanedyn-edd-a-n megad-an, umuzu-s vid-an umuz-ego oddbeget du-mugg-ada tab-irr ...
[and see-PST.1PL... spot-PL.ACC of spatter-PASS.PTCP-F.SG-ACC plaster-SG.ACC 3PL-REL meaning-SG.ACC 1PL-POSS decoder.SG.NOM NEG-suceed-PAST.3SG decipher-INF]
'And we saw ... spots of spattered plaster, the meaning of which our decoder could not make out ...'

Morphological ambiguity, which is rampant in natural human languages and constitutes one of the greatest challenges to natural language processing (Manning), is also in evidence in Yggur: the form umun can be parsed both as the Nominative form of the word meaning 'god' and as the Accusative form of the first-person singular pronoun.

## Verbal inflection

Table 6 summarizes verbal inflection as represented in the grammatical sketch.

Table 6: Inflection of the verb monirr 'open' (adapted from the appendix to the novel)

| $1^{\text {st }}$ person <br> $2^{\text {nd }}$ person <br> $3^{\text {rd }}$ person | Present Sg <br> mon-u <br> mon-ed <br> mon-ad | Present Pl <br> mon-ude <br> mon-edet <br> mon-ade |
| :---: | :---: | :---: |
| $1^{\text {st }}$ person <br> $2^{\text {nd }}$ person <br> $3^{\text {rd }}$ person | Past Sg <br> mon-udu <br> mon-ede <br> mon-ada | Past Pl mon-udelu mon-edul mon-adul |
| $1^{\text {st }}$ person <br> $2^{\text {nd }}$ person <br> $3^{\text {rd }}$ person | Future Sg ollu monirr olled monirr ollad monirr | Future Pl ollude monirr olledet monirr ollade monirr |
| $\begin{aligned} & 2^{\text {nd }} \mathrm{sg} \\ & 1^{\text {st }} \mathrm{pl} \\ & 2^{\text {nd }} \mathrm{pl} \end{aligned}$ | Imperative <br> mon-est! <br> mon-este! <br> mon-esti! | Infinitive <br> mon-irr <br> Deverbal noun mon-yb |
| Participles in nominative: <br> Masculine singular <br> Masculine plural <br> Feminine singular <br> Feminine plural | Active participles mon-el mon-elori mon-ela mon-elaru | Passive participles mon-edd mon-eddori mon-edda mon-eddaru |

Verbs are inflected for tense (present vs. past), person ( $1^{\text {st }}, 2^{\text {nd }}, 3^{\text {rd }}$ ) and number (singular vs. plural). Future is expressed using an auxiliary verb that is conjugated in the present tense and followed by the main verb in the infinitive form. There are also active and passive participles (the latter collocated with forms of the verb dunirr 'be'), as well as imperative forms, such as sigest! literally 'be healthy!,' a form used as a greeting when meeting someone. Nega-
tion is achieved by prefixing $d u$ - to a verb form, and this can be done in all three tenses and imperative, as we see in these examples from the corpus:

```
present tense: du-umutu 'I do not know'(umutirr 'know')
past tense: du-nalygada 'it wasn't possible' (nalygirr 'be possible')
future tense: du-ollade kiramydirr 'we will not change' (kiramydirr 'change')
imperative: Du-ryvest 'Don't be afraid' (ryvirr 'be afraid')
```

In contrast to Czech, Yggur does not appear to have verbal aspect or reflexive verbs.

## Derivational morphology

Whereas inflection is fairly well documented in the grammar sketch, most of the derivational morphology has to be deduced from the corpus. Two suffixes are described in the grammar sketch: -avim, which forms denominal adjectives, and -eto, which derives adverbs from adjectives, such as summun 'obedient' (cf. verb sumirr 'serve') > summuneto 'obediently', vanat 'quiet' $>$ vanateto 'quietly'. Relational adjectives derived from nouns via suffixation in -avim can be used to signal:

Material: kutun 'glass' > kutunavim '(made of) glass', nalagadda 'diamond' > nalagaddavim '(made of) diamond'
Location/Belonging: girra 'sun'> girravim '(belonging to the) sun', ollizim 'railroad station' $>$ ollizimavim '(belonging to the) railroad station'

Time: yllara 'night' > yllaravim 'night-time (adj.)', kumitun 'evening' > kumitunavim 'evening (adj.)'
Characteristic: mutum 'evil (n.)' > mutumavim 'evil (adj.)'
All other features of derivational morphology I have pieced together by comparing words across the corpus and glossary.
It is possible to discern at least two dozen families of between two and eight words that appear to be derivationally related to each other, such as the two word families presented in Table 7. There is not enough data to dig into the details of the derivational morphemes and morphophonemics involved, although we do see traces of both consonant length (here: $r$ vs. $r r$ and $g$ vs. $g g$ ) and vowel gradation (here: $e$ vs. $y$ ) as possible "evolutionary" features of Yggur.

Table 7: Two examples of apparent word families, one with the root gir(r)- 'light' and another with the root $\operatorname{beg}(g)-/ b y g(g)-$ 'write'

| egirra | 'shine (n.)' | bege | 'letter' |
| :--- | :--- | :--- | :--- |
| egirrunirr | 'gleam (v.)' | begetyd | 'script' |
| girra | 'sun' | begge | 'sign' |
| girrabadogg | 'daybreak' | byggadirr | 'write' |
| girromebe | 'neon' | lom-byggad | 'typographical error' |
| ogir | 'light' | odd-beget | 'decoder' |
| ogirirr ogirrima | 'shine' |  |  |

A group of interrogatives and temporal adverbs form a particularly tantalizing series. The word for 'what?' is $d a$, and it combines with the preposition sat 'for' to form sat-da 'why?' Four additional words suggest a possible "historical" intervocalic devoicing in $d a->-t a$, which might be glossed as merely 'wh?-': ita 'when?', uta 'where?', ellita 'always' (also related to elle 'everything' and ellori 'everyone'), and yzita 'sometime'. Since evidence of language evolution is a hallmark of the highest quality for (at least some) language inventors (cf. Peterson), facts like this help to situate Yggur among constructed languages (see Section 3).

Certain prepositions can serve also as prefixes to indicate location, as in bet-lurrer 'seaside' (adj.) formed from bet 'by, near' + lurr 'sea' (n.); direction, as in vad-danumirr 'arrive' formed from vad 'toward' + danumirr 'go'; and time as in nyd-mutyrra 'afternoon' formed from nyd 'after' + mutyrra 'noon'. The relationship between conceptualization of time and space is particularly interesting in the group of words gathered in Table 8, where the root oll- 'in front of/before' has different prepositional realizations for the two domains, and can further combine with words with both spatial ('front') and temporal ('future') meanings.

Table 8: The root oll- signaling both space and time

| oll- expressing space |  |  | oll- expressing time |
| :--- | :--- | :--- | :---: |
| olle | 'in front of' | oll | 'before' |
| mega | 'wall' | -irr | verbal formant |
| ollemega | 'façade' | ollirr | future tense auxiliary verb |

Yggur regularly forms compound nouns (and an adverb) derived from various combinations of nominal and verbal components, as documented in Table 9. As we often see in natural languages, the meanings of compounds are not strictly compositional, i.e., not always directly computable from the components.

Table 9: Compounding in Yggur

| First component | Second component | Compound |
| :--- | :--- | :--- |
| nyra 'hand' | bagg 'work' | nyrabagg 'instrument, tool' |
| lom 'miss, past, beside' | byggadirr 'write' | lom-byggad 'typographical error' |
| oddir 'understand, grasp' | begetyd 'letter' | odd-beget 'decoder' |
| yda 'happiness' | buddirr 'prophesy' | ydabudda 'gospel' |
| byrull 'end' | vallim 'stand' | byrull-vallimer 'last stop' |
| dunirr 'be' | vugirr 'be able, dare' | dunad vug 'maybe' |
| ludunna 'star' | nyla 'boat' | ludunna-nyla 'spaceship' |
| lyme 'book' | otuna 'house, building' lymotuna 'library' |  |
| lomm 'man' | tenirr 'transport' | lomm-tener 'streetcar' |

Diminutives are formed by suffixation in Yggur, cf. nyla 'boat' vs. nylaguda 'small boat' and ymirama 'column' vs. ymiramaguda 'small column'.

### 2.4 Lexicon

While the lexicon of Yggur is tiny in comparison with natural human languages, it is in principle open-ended (new words could easily be added) and it is also well-behaved in terms of distribution. Nearly all parts of speech are documented in the Yggur lexicon: nouns (including proper nouns, such as the names Tyr and Surr), pronouns, adjectives, adverbs, verbs, prepositions, conjunctions, and interrogatives. The only major word class that is entirely missing is numerals.

An essential, but still mysterious, characteristic of natural languages is the Zipfian distribution of their words, named for George K. Zipf (1949) who first discovered this fact. The frequency of words in a corpus of any natural language can be shown to follow a power law, such that the frequency of a word is inversely proportional to its frequency rank ( n ), so frequency $=1 / \mathrm{n}$. This yields a characteristic right-skewed curve, with a few words of high frequency, a sharp decline, and then a long tail of words of low frequency, ending with a string of hapaxes (words that occur only once) that constitute approximately half of the unique words in a corpus (Baayen). This distribution is fairly stable, regardless of whether a corpus contains only a few tens of thousands of words or hundreds of millions of words. Even fairly small corpora, such as the text of Shakespeare's Romeo and Juliet (3102 words) approximate a Zipfian distribution (Thurner). As shown in Figure 2, the fre-


Figure 2: Frequency distribution of words appearing 4 or more times in Yggur corpus
quency distribution of the Yggur corpus is likewise nearly Zipfian, since a few words are of fairly high frequency, with a steep decline and then many words that occur only infrequently.
Figure 2 represents the twenty-two most frequent words in Yggur, ranging from thirty-seven to four occurrences each. There are in addition thirteen words that occur three times, forty-two that occur twice, and 306 words that occur only once. The latter group, the hapaxes, thus constitute $48.4 \%$ of total unique words, a figure that is entirely in line with what we expect from corpus studies of human languages.
There is one word in which the lexicons of Czech and Yggur intersect, namely the noun sen, which means 'dream' in both languages. This is certainly both meaningful and intentional, given Ajvaz's focus on the importance of dreams (cf. his 2008 book with Ivan M. Havel about dreaming). More relevant to Yggur, however, is this quote about the relationship between a created language and dreams from Ajvaz's 2011 interview:
"Taková fikční jazykověda by asi byla především jakousi psychoanalýzou tvůrců těch jazyků. Ale mohla by se proměnit ve skutečnou jazykovědu, kdyby některá z řečí nějakým způsobem ožila. A to asi není úplně vyloučené-vím, že jsou lidé, kteří se spolu baví klingonsky nebo elfsky, a je možné, že se nějaký takový jazyk jednou přelije přes hranice úzké komunity a začne se organicky vyvíjet, třeba se začne prolínat s už existujícími jazyky, vytvářet pidžiny, nebo naopak se stane literárním jazykem jako latina ve středověku. Ostatně když obrozenci zaváděli jako spisovný jazyk češtinu šestnáctého století vylepšenou neologismy, také vlastně uváděli do života jazyk svého snu a nechali jej žít a vyvíjet se."
'A linguistic study of fictional languages would likely be primarily a means for psychoanalysis of the creators of those languages. But it could turn into a real linguistic study if one of the languages somehow came to life. And this is not entirely impossible-I know that there are people who talk to each other in Klingon or Elfin, and it is possible that such a language could escape the boundaries of its small community and begin to evolve organically and maybe it could begin to merge with existing languages, create pidgins, or on the contrary become a literary language like Latin in the Middle Ages. After all, when the [nineteenth-century] revivalists introduced sixteenth-century Czech enriched with neologisms as the literary language, they also brought the language of their dreams to life and let it live and evolve.'

### 2.5 Syntax

Yggur is a "pro-drop" language, meaning that a Subject that would otherwise be expressed by a pronoun is omitted when the person and number of the Subject are marked on the verb, as in this example:
Edelugg-udelu gam-edd-a-n uze-n
[see-PST.1PL crumple-PTCP.PASS.SG-F-SG.ACC paper- SG.ACC]
'We saw crumpled paper'
Here the past tense form of the verb edeluggirr 'see' is marked for both first person and Plural, and there is no overt Subject pronoun. All clauses in the Yggur corpus where the Subject is not a full Noun Phrase show pro-drop.

Yggur appears to be an "SVO" language (a language in which the dominant order is Subject followed by Verb followed by Object), which is the second most common word order among the world's human languages (Dryer). The above example illustrates Verb-Object order, which is consistent throughout. There are relatively few clauses with Subjects expressed as full Noun Phrases, and all of these show Subject-Verb word order, as in this example, where the subject is lattaru 'women' and the verb is lysade 'they embrace':
ikun-aru latt-aru tan yr-eto-bymil-edd-a-ru luna-ru lys-ad-e tan egirrunavim-ori varan-ori
[naked-PL.F woman-PL with green-ADV-paint-PTCP.PASS-F-PL eye-PL.NOM+OBL embrace-PRS.3-PL with shiny-PL.NOM + OBL robot-PL.NOM + OBL]
'naked women with their eyes painted green share embraces with shiny robots'
The corpus presents only one sentence containing a transitive clause in which both arguments are realized as a full Noun Phrase, thus attesting all three elements in SVO order: Subject nyrabaggaru 'instruments' - Verb salade 'recall'-Object da 'what'.
umuz-ego nyrabagg-aru sal-ade da dun-adul ed syrum-aru og linavat-eru ed salla
[1 PL-POSS instrument-PL.NOM + OBL recall-PRS.3PL what be-PST.3PL in palace-PL.NOM + OBL and city-PL.NOM + OBL of jungle.SG.NOM + OBL]
'our instruments recall what they were in the palaces of the cities in the jungle'
As described above under Morphology, a minimal case system supplemented by prepositions expresses syntactic relations and both adjectives and participles agree in case and number with nouns.

### 2.6 Summary of linguistic structure

This brief account of linguistic structure suffices to prove that Yggur does indeed look like a full language. It is entirely possible to create new sentences in Yggur, a task that was productively undertaken in the 2017 Linguistics Olympiad in the Czech Republic (http://ufal.mff.cuni.cz/clo) based on materials provided by the author of this article. In this sense, Yggur, like many other constructed languages, is a "real" language.

## 3. Yggur in the linguistic cosmos

The world of constructed languages, also known as "conlangs," is quite large and complex and intricately intertwined with the palette of natural human languages. We situate Yggur in that cosmos according to the following parameters: relationship of the conlang to natural human languages, the conlang's language complexity, and the purpose of the conlang. The position of Yggur is specified with respect to all of these parameters.

### 3.1 Relationship to natural human languages

All conlangs stand in some relationship to the natural human languages of their creators, and it can be hard to draw a firm boundary between the two types of languages. There are over 6000 known natural human languages (https://www.ethnologue.com), and even within the boundaries of these languages we find partially artificial creations that could be called "semiconstructed" languages. To find an artificial version of a natural human language, one does not have to look any further than modern literary Czech, which Cummins (255) aptly described "as a literary algebra of Old Czech morphological history" (cf. Ajvaz this volume). On the other end of the register spectrum, "street language" as represented in works of fiction or online forums is likewise partially artificial, and such literary representation goes at least as far back as the argot in Hugo's Les Misérables. Modern examples of representation of spoken registers include the spoken Czech in Topol's Sestra, as well as олбанский язык/язык падонкаф on Russian internet sites (although the latter diverges from standard Russian mainly in terms of its creative orthography). Modern Hebrew is a dramatic example of a partially artificial creation that established itself as a natural human language after a hiatus of fifteen centuries. Most other such revival experiments have not been so successful outside of the "laboratories" where they were concocted, but cf. Modern Cornish which in 2009 changed its classification from "extinct" to "critically endangered."
Partially artificial varieties of human languages stand at one end of the "a posteriori" (based on existing languages) - "a priori" (not based on known languages) scale. The next step along this scale is auxiliary languages constructed to serve as a lingua franca and promote communication across borders. The most famous of these is Esperanto, though there are many others, such as Volapük, Ido, Novial, Interlingua, and Glōbish. Auxiliary languages tend to be based on natural languages, often combining simplified features of lexicon and grammar from several sources. This "macaronic" character of auxiliary languages is parodied in Europanto, a free-flowing pastiche that can contain words and phrases from any language that the speaker wants to use and has no fixed grammar. While the most widely known auxiliary languages tend to be based on Western European natural languages, other types of "zonal" auxiliary languages like Afrihili exist as well, and the Slavic languages have provided the basis for over sixty auxiliary languages such as Interslavic/Medžuslovjanski. Auxiliary languages differ from pidgins in that they are intentionally constructed rather than naturally-occurring. In contrast to auxiliary languages whose purpose is to promote intelligibility, "antilanguages" (Halliday) are modifications of natural languages invented in order to make communication intelligible only to insiders, thus excluding outsiders.
Most conlangs are not auxiliary languages, but many are nevertheless
related to natural human languages in a variety of ways. Some conlangs are mere modifications of existing natural languages, as is the case with Nadsat (the English with Russian borrowings used by teenagers in Burgess's 1962 novel $A$ Clockwork Orange), and NewSpeak (an intentionally impoverished version of English spoken by characters in Orwell's Nineteen Eighty-Four). More often conlangs borrow from or are otherwise directly inspired by natural languages, though it might take a linguist to appreciate the connections, as we see in Tolkien's conlangs that interleave Germanic elements with features of Finnish.
Moving further along the dimension of relationship to natural human languages, we find conlangs that are not transparently derived from natural human languages. Such a priori conlangs can be organized in four groups according to how closely they cling to or how far they stray from the norms of human languages.
Adhering to the norms of natural human languages are a priori conlangs that do not display any feature that goes beyond the pale of what we know to be possible from linguistic typology. Such conlangs conform to the common categories of linguistic typology as documented by cross-linguistic comparison in, for example, the World Atlas of Language Structures (https://wals .info, Haspelmath). Dothraki (constructed by David Peterson for Game of Thrones) is a conlang of this type, which can be termed "typologically normative." This does not mean that all of the features of a language must be typologically ordinary. Indeed, no natural human language is entirely devoid of typologically unusual features, but those features are still within the scope of what is normal for a language. So typologically unusual features are also typologically normative, although they are on the periphery of that category.
Other a priori conlangs have been deliberately constructed to be typologically abnormal, but not necessarily impossible. Klingon of Star-Trek fame is a prime example, with a deliberately unusual consonant inventory and word order. However, Klingon can be and is spoken by humans, albeit the range of concepts available in the vocabulary are heavily skewed toward warfare and space travel.
Further down the scale come languages that are severely maladapted for use as human languages. These include Ptydepe and Chorukor (Havel), both of which set impossible restrictions on the shape of words (cf. description by Fidler \& Cvrček, this volume), as well as Borges's Tlön, a family of languages that allegedly lack nouns, with all words based either on verbs or adjectives. Even further removed from natural human languages are conlangs developed for aliens that are decidedly non-human, such as the Heptapod language consisting of ink-blot patterns in the 2016 movie Arrival and a neutrino signal from space that might be carrying messages in Lem's Glos pana.
Natural and semi-constructed languages, as well as conlangs that are based on human languages stand in contrast to conlangs that are entirely fictitious,
and Yggur belongs to the latter category. Yggur is neither semi-constructed nor otherwise based on any known natural human language, but it is typologically normative: there is nothing highly unusual about the phonology, morphology, or syntax of Yggur. Yggur could, in principle, be spoken by human beings, although the lexicon would need to be greatly expanded.

### 3.2 Complexity

Maladapted conlangs, if they can be said to exist at all, do so mostly as brief descriptions, perhaps illustrated with a few words or phrases. These languages do not as a rule have dictionaries or grammars, much less real speakers, although their fictitious speakers may be described as human or human-like. However, other types of conlangs (typologically normative, typologically abnormal, auxiliary languages and adaptations of natural human languages) can and sometimes do have human speakers. These languages differ along two dimensions: whether they are "partial" or "full" languages, and whether they are "evolved." Partial languages are languages that lack enough grammatical features to cover the needs of a speech community, as opposed to full languages that can support the normal expressive range of a language (with categories like tense and person and number). All natural human languages are evolved because their wordforms show reflexes of historical sound laws, such as the results of the palatalizations of velars (for example $g>\check{z}$ in Russian kniga 'book', knižka 'book (dim.)') and the fall of the jers (for example the absence vs. presence of $e$ in Russian knižka, knižek 'book (dim.)' NOM.SG, GEN.PL) in Slavic languages. Some conlangs mimic such patterns by constructing and applying sound laws to their wordforms as well (Peterson).
Tolkien never worked out the details of his Khuzdul language (spoken by Dwarves), leaving behind only limited documentation of its phonology and morphology based on Semitic languages, plus a few phrases. Khuzdul is thus a partial language. Two other partial languages from Tolkien's legacy, Quenya and Sindarin (spoken by High Elves and Grey-Elves, respectively), have subsequently been extended to full languages by enthusiasts, and both of these languages are evolved in the sense that their wordforms evidence reflexes of (artificial) "historical" sound laws (for more on Tolkien's languages see Solopova).
Auxiliary languages tend to be full languages by design, but also tend to eschew all kinds of "unnecessary" complications, including the kind of complex morphophonemics engendered by historical sound laws (both organic and concocted). Thus, auxiliary languages are usually full languages that are minimally (or not at all) "evolved." Non-auxiliary conlangs with similar range but limitation in evidence of "evolution" include Klingon and Láadan (a mostly a priori language with influences from Navajo and English; Elgin). A priori conlangs that aspire to the highest standards are both full languages and evolved, such as Dothraki and other derivatives of High Valyrian (the
"historical" antecedent of languages in Game of Thrones). English has served as the basis for two a posteriori conlangs: Riddleyspeak which is "evolved" two thousand years into the future (Hoban), and Anglisc which is "devolved" one thousand years into the past (Kingsnorth).
Grammatically Yggur appears to be a full language, meaning that it covers the major expressive needs of a natural language, albeit with a limited documented lexicon. There is scant evidence of evolution.

### 3.3 Purpose

Natural human languages, auxiliary languages, and revival languages exist primarily to serve the communicative needs of their speech communities, although even these languages can be wielded for ideological purposes, especially in situations of colonialism and post-colonialism. The plethora of zonal auxiliary languages that draw on Slavic roots and structure are an expression of the nineteenth-century ideology of Pan-Slavism.
Conlangs usually have some kind of purpose, even if it is just having fun (the purpose of many private conlangs), exhibiting expertise (in conlang competitions), or exoticizing characters in fiction and film. The purpose can also be more specifically ideological, usually within works of fiction. Tlön and Newspeak are implemented as sinister attempts to limit human thought. Láadan is an experiment in providing a feminist perspective. Heptapod appears to be a gift (or tool or weapon) for mankind. The purpose of Lem's neutrino signal is as mysterious as the "language" itself.
Ajvaz does not state a purpose for Yggur, leaving that open to interpretation by the reader. I expand on this question in the conclusion.

## 4. Conclusion

As demonstrated thus far, Yggur possesses the full range of grammatical complexity of a natural human language, well within the norms of linguistic typology, but not based on any known language. The creation of such a language is an exquisite achievement. But why has the author taken such pains to craft an entire conlang for the sake of a few pages of dialog? Would it not have sufficed to merely scribble in a meaningless collection of characters and spaces? After all, the author could hardly expect readers to go to the effort of deciphering a language that even the protagonist suspects of being a mere ruse. Furthermore, decipherment itself does not reveal much in the way of a hidden message. The dialog (see Appendix) is mostly about an assortment of seemingly random visual and auditory impressions (reflections of sunlight, whirling specks of dust, the sounds of trams and trains). However, there is talk of an "evil omen," and buried among references to lost cities in the jungle and dances for new gods in diamond space suits, there is this one sentence:

Sat-da talubude na maggumaru bazelaru, gulludadul og lom-byggadori dunade val du-vidaru, lome umutude na kymina tabba oddanumad ali na koma lavanaru og vad-danumelori umunori agabanade tan umuzu?
'Why do we think that words that appeared due to typos are only nonsense, even though we know that an old language is working its way to the surface and that simultaneously the names of approaching gods announce themselves with them?'

This sentence is a warning that what appears to be accidental gibberish is actually something powerful breaking forth. This sentence also puts the description of seemingly random sights and sounds into perspective: the nonsense of noise might not be nonsensical after all. Paul's typo very literally unleashed a disaster in his life.
There are three essential factors that empower Yggur to entrap Paul. One is the fact that Yggur is a full language, not mere gibberish. The second is that Yggur is an a priori language, something truly otherworldly since it is not transparently derived from any known language. The third is that Yggur is a typologically normative language, meaning that it is entirely compatible with the human capacity for language, something that can easily resonate with the human mind. In short, Yggur is a real, comprehensible, yet absolutely unknown language, combining exoticism with a potency capable of directing the expression of both thought and speech.

Yes, Ajvaz could have just strung letters together to represent the dialog of Ross's fictional characters. But he didn't. He built and implemented an exquisitely crafted language instead. He did this to give "okitubis" the power to take over Paul's life. An empty assembly of consonants and vowels would not have that power. And Ajvaz's larger message is about the power of language and meaning that is hidden in seemingly haphazard patterns all around us, along with a challenge to the reader to decipher it.

## REFERENCES

Ajvaz, Michal. Druhé město. Brno: Petrov, 2005.
Ajvaz, Michal. Lucemburská zahrada. Brno: Druhé město, 2011. [English translation forthcoming from Dalkey Archive Press.]
Ajvaz, Michal. Zlatý věk. Brno: Druhé město, 2011.
Ajvaz, Michal \& Ivan M. Havel. Snování: Rok dopisů o snech. Červený Kostelec: Pavel Mervart, 2008.
Baayen, R. H. "Corpus Linguistics in Morphology: Morphological Productivity." Corpus Linguistics. An International Handbook, edited by A. Lüdeling, and M. Kyto, Mouton De Gruyter, Berlin, 2009, pp. 900-19.
Borges, Jorge Luis. Tlön, Uqbar, Orbis Tertius. Sur, 1940.
Burgess, Anthony. A Clockwork Orange. UK: William Heinemann, 1962.
Cummins, George. Plural, Gender, and Pluralia in Czech. Slavic and East European Journal, vol. 35, no. 2, 1991, pp. 254-271.
Dryer, Matthew S. Order of Subject, Object and Verb. The World Atlas of Language Structures

Online, edited by Matthew S. Dryer and Martin Haspelmath, Leipzig: Max Planck Institute for Evolutionary Anthropology, 2013, http://wals.info/chapter/81. Accessed 17 Sept. 2018. Elgin, Suzette Haden. Native Tongue. New York: DAW Books, 1984.
Halliday, M. A. K. Anti-Languages. American Anthropologist, vol. 78, no. 3, 1976, pp. 570-584.
Haspelmath, Martin. World Atlas of Language Structures. Oxford: Oxford University Press, 2005.

Havel, Václav. Vyrozumění. In: Václav Havel, Protokoly. Prague: Mladá fronta, 1966.
Hoban, Russell. Riddley Walker. London: Jonathan Cape, 1980.
Hugo, Victor. Les Misérables. Brussels: A. Lacroix, Verboeckhoven \& Cie, 1862.
Jelínek, Jiří. Konstruované jazyky v literaturě. PhD Dissertation, Charles University, 2018.
Kingsnorth, Paul. The Wake. Unbound Digital, 2015.
Kořínek, Pavel. Napětí mezi beztvarostí a tvarem. S Michalem Ajvazem o fikčních jazycích, sci-fi a nemocných městech. A2, no. 23, 2011, https://www.advojka.cz/archiv/2011/23/ napeti-mezi-beztvarosti-a-tvarem. Accessed 8 Feb. 2019.
Lem, Stanisław. Glos pana. Warsaw: Czytelnik, 1968.
Maddieson, Ian. "Consonant Inventories." The World Atlas of Language Structures Online, edited by Matthew S. Dryer and Martin Haspelmath, Leipzig: Max Planck Institute for Evolutionary Anthropology, http://wals.info/chapter/1. Accessed 13 Oct. 2019.
Maddieson, Ian. "Vowel Quality Inventories." The World Atlas of Language Structures Online, edited by Matthew S. Dryer and Martin Haspelmath, Leipzig: Max Planck Institute for Evolutionary Anthropology, http://wals.info/chapter/2. Accessed 13 Oct. 2019.
Manning, C. D. "Part-of-Speech Tagging from $97 \%$ to $100 \%$ : Is It Time for Some Linguistics?" Computational Linguistics and Intelligent Text Processing, 12th International Conference, CICLing 2011, Proceedings, Part I, edited by Alexander Gelbukh, Lecture Notes in Computer Science 6608, 2011, pp. 171-89.
Orwell, George. Nineteen Eighty-Four. London: Secker \& Warburg, 1949.
Peterson, David J. The Art of Language Invention: From Horse-Lords to Dark Elves, the Words Behind World-Building. New York: Penguin, 2015.
Solopova, Elizabeth. Languages, Myths, and History: An Introduction to the Linguistic and Literary Background of J. R. R. Tolkien's Fiction. Oxford/New York: North Landing Books, 2009.

Thurner, Stefan, Rudolf Hanel, Bo Liu \& Bernat Corominas-Murtra. "Understanding Zipf's Law of Word Frequencies through Sample-Space Collapse in Sentence Formation." Journal of the Royal Society Interface, vol. 12, no. 108, 2015. 20150330. doi:10.1098/rsif.2015.0330.
Topol, Jáchym. Sestra. Brno: Atlantis, 2008.
Zipf, George K. Human Behavior and the Principle of Least Rffort. Reading, MA: AddisonWesley, 1949.

## APPENDIX: Approximate translation of the Yggur corpus.

Note: words that cannot be interpreted are represented as ???, and the position of "okitubis" is indicated in the last line.
"I end the meeting today."
"Hello, I am glad that I see you."
"We penetrated further than everyone [who went] before."
"We walked through the rooms and we saw the undulating curtains in empty apartments, flashes of afternoon sun on the chests of drawers specks of dust flying in little columns of light, we read sentences from an open novel forgotten on a table, which discussed a conversation of a man and a woman on a seaside promenade..."
"We saw crumpled paper, which was chased by the wind in empty morning streets, we saw large letters on walls on which pink light of the evening sun lay, we saw big and empty railroad-station halls and their sad angels flying near the high ceiling with brown spots, in distant hours we observed the hands of ??? women in cafés on the table-tops drenched in late afternoon sunlight, we read upsetting signs written with ??? on the walls (we understood their meaning suddenly one night, when we heard only the rattling of a tram behind the houses, but we were already so far into the land??? of the enemy, that it wasn't possible to escape)."
"We saw crooked shadows on white walls in the empty street [by] the last stop at the end of the city, we heard ???, many types of ??? behind the windows, night??? sounds of trams and ??? whistles of trains..."
"The night??? sounds of trams and ???whistles of trains..."
"And next? What happened next?"
"Next there were the lights of factories which fly behind the window of the night train, blinking and buzzing neon signs above the sleeping apartments in the dawn, the rattling of the elevator in the night??? houses..."
"Yes. What Tyr said is true, we all saw and we heard, and certainly we will never forget it."
"And also we saw much???, big letters on facades illuminated by the setting sun, the florescent lamp rattling in the abandoned yard of the factory at night, spots of the spattered wall, the meaning of which our decipherer could not make out..."
"Is [it] possible??? it was our luck..."
"Bliss."
"It is all an evil omen, we are not able [to tolerate] the evil flashes of the sun..."
"But the quiet sunlight of afternoons already lies on our instruments, it awakened in them dreams about golden cities in the jungle, where evil ???s reign, and our instruments recall what they were in the palaces of the cities in the jungle-can we believe that we will also sometime serve as is proper? That we will not change our work into a ritual calling forth from the stars new gods in diamond space suits in spaceships made of gold from lost cities in the jungle? They are traitors, who already now turning to the new gods and who dance rare dances for their celebrations in the evening rooms, in which the red sun wandered into the garden? Why do we think that words which appeared due to typos are only nonsense, even though we know that an old language is working its way to the surface and that simultaneously the names of approaching gods announce themselves with them? Why do we pretend that we don't hear the songs which quietly resound from their laptops, songs which they sing about halls in which naked women with their eyes painted green share their embraces with shiny robots?"
"You are tired, you can go into your house, come back tomorrow and we will talk about everything."
"Hello, Surr."
"Hello to you too."
"Do you want to take a walk in the garden?"
"Stop being afraid, my dear, I too am already not afraid."
"Don't be afraid, don't be afraid of defeat and victory, I don't know whether we will be victorious or we will be defeated, but defeat and victory are only an opportunity to initiate the new action of magical dramas, of new gods, of which you are
afraid, they are only figures of your desire which you do not yet know and which want to be born, their bible is written with writing made of spots on the walls..."
"Stop being afraid, we are together, after all you know that we will always be together."
"We met in front of a glass cathedral, in which a big lizard slept, we play??? together one melody on a big keyboard which in the evening goes through the forest and through empty rooms with heavy armchairs and with large quiet bookshelves, we will sail in a boat on a river in an uninhabited land above which float white statues with wrapped up faces."
"Stop being afraid, we will ??? in ???ed ???s , where statues will ??? south, we will in nighttime ???s , where fugitives??? from boats will arrive??? in ??? ???s."
"We will ??? ??? the sea, where ??? ??? [okitubis] and ??? diamonds we will ??? and where we will ??? the stars..."

Abstract<br>Laura Janda<br>Yggur and the Power of Language: A Linguistic Invention Embedded in a Czech Novel

Paul, the protagonist of Michal Ajvaz's novel Lucemburská zahrada [The Garden of Luxembourg], has his life upended by a single typo. An accidental combination of letters brings Paul in contact with the mysterious Yggur language that exerts an inexorable transformative power. This article demonstrates how Ajvaz has engineered Yggur to wield its power over Paul, thereby showing the reader that potent messages can be embedded in seemingly random patterns. I reveal that Yggur is a "real" language and that it is possible to interpret it, despite the obvious (and probably intentional) shortcomings of the documentation presented by the author. I argue that further important factors in the spell of Yggur are the facts that it is an apriori constructed language (not transparently derived from any known language) and that it is, with a few minor exceptions, typologically normative for a human language. This article details the genius of Ajvaz's creation and addresses the reason why the author went to such pains to create something that most readers will never bother to make sense of.

