mailia

Mindaugas Gapševičius

```
wsdl:arrayType="typens:ResultEle-
ment[]"/>
            </xsd:restriction>
        </xsd:complexContent>
     </xsd:complexType>

     <xsd:complexType name="Directory-
CategoryArray">
        <xsd:complexContent>
          <xsd:restriction
base="soapenc:Array">
             <xsd:attribute
ref="soapenc:arrayType" wsdl:array-
Type="typens:DirectoryCategory[]"/>
           </xsd:restriction>
        </xsd:complexContent>
     </xsd:complexType>

     <xsd:complexType name="Directory-
Category">
        <xsd:all>
          <xsd:element name="fullView-
ableName" type="xsd:string"/>
          <xsd:element name="specialEn-
coding" type="xsd:string"/>
boolean"/>
          <xsd:element name="resultEle-
ments"              type="typens:Re-
```
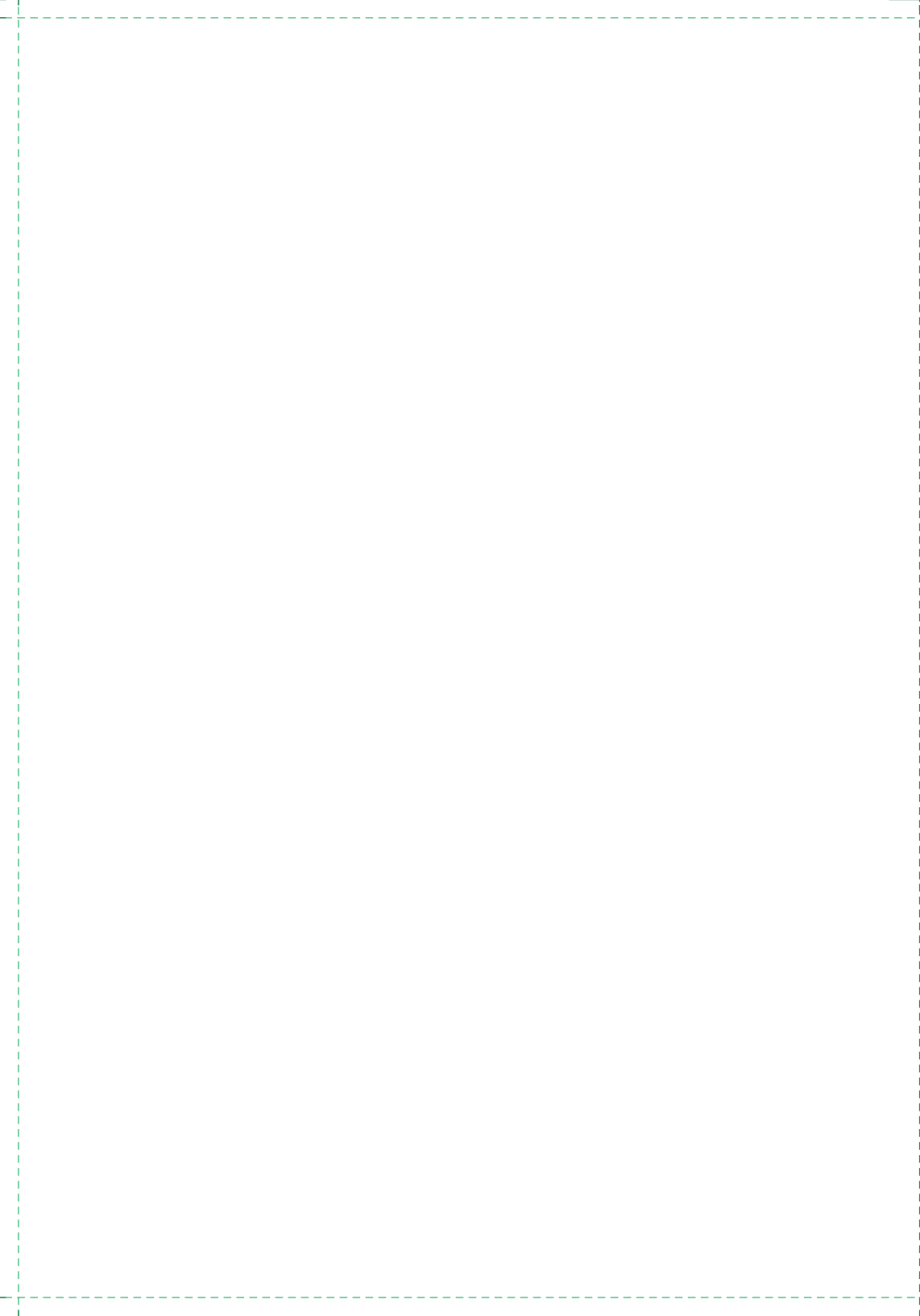
```xml
ryCategory"/>
            <xsd:element name="directo-
ryTitle" type="xsd:string"/>
        </xsd:all>
     </xsd:complexType>

     <xsd:complexType name="ResultEle-
mentArray">
        <xsd:complexContent>
         <xsd:restriction
base="soapenc:Array">
            <xsd:attribute
ref="soapenc:arrayType" wsdl:array-
Type="typens:ResultElement[]"/>
         </xsd:restriction>
        </xsd:complexContent>
     </xsd:complexType>

     <xsd:complexType name="Directory-
CategoryArray">
        <xsd:complexContent>
         <xsd:restriction
base="soapenc:Array">
            <xsd:attribute
ref="soapenc:arrayType" wsdl:array-
Type="typens:DirectoryCategory[]"/>
         </xsd:restriction>
        </xsd:complexContent>
```

Mindaugas Gapševičius (b. 1974) is an artist. He obtained his MA at Vilnius Academy of Arts in 1999, and his MPhil at Goldsmiths, University of London, in 2016. Since 2016, he has been conducting PhD research at Bauhaus University, Weimar, where he holds an artistic associate chair.

Gapševičius is one of the initiators of Institutio Media, the first Lithuanian new-media art platform on the Internet, founded in 1998, and of the Migrating Art Academies educational framework for emerging artists, founded in 2008. In 2016, he set up the first community-based biolaboratory in Berlin, together with colleagues from the TOP Association. His works question the creativity of machines, and do not presume humans are the only creative force.

Gapševičius' work has been shown, among others, at the KUMU Art Museum in Tallinn (2011), Pixxelpoint International Festival of Contemporary Art Practices in Nova Gorica (2014), Pixelache Festival in Helsinki (2015, 2016), RIXC Art Science Festival, Riga (2016), and Piksel Festival Bergen (2018).

http://www.triple-double-u.com

>> contents

>>introduction

A few days ago, I came across the article "OpenAI's Realistic Text-Generating AI Triggers Ethics Concerns" in Forbes, written by William Falcon.* The text refers to the software recently written by OpenAI, the AI research company founded by Elon Musk. According to the article, the software can generate the most realistic paragraphs of text. Nevertheless, the software has not been released, and the company, although claiming itself to be open, acts contrarily to open-source standards. In short, the article argues that not releasing the code may trigger unnecessary fears about AI in the general public. Having said that, I thought, bingo, here we are.

A dozen years ago, I released Mailia, open-source software designed to be used to answer personal emails. The software, of course, was not meant to be perfect but rather provocative, and deep in my heart, I was expecting someone to notice it and to continue… developing it. To my knowledge, it has not been developed further, but it has been noticed. And noticed in an unexpected way.

Imagine an "out of office" reply being sent from the mailbox of a person you have sent an email to. Imagine a mailing list delivering emails to its subscribers. Imagine yourself sending an email to the list and receiving an "out of office" type of email from a certain Mailia, a subscriber to the mailing list. Now, imagine the content of the emails being unique, referring to the content of your own message, but slightly messed up and illogical. That type of email could be really annoying if you are an active contributor to the mailing list. Now, imagine someone sending an email to the Rhizome mailing list with the "From:" field being the same as the email of the Rhizome mailing list. And finally, imagine Mailia getting emails from Rhizome, replying to them,

and then again getting a copy from Rhizome and then replying again, and so on and so forth. It creates a feedback loop of emails being sent between the two machines. And on top of that, there is a new input from the subscribers to the list, who continue reflecting the feedback loop, adding new content to the email thread. A mix of machine-generated content supplemented with the content written by a human makes the conversation somewhat poetic.

To sum up, this book is about a conversation between a human and a machine, and the power of hybrid poetry, enhanced by AI. Who the hell is better? A human, a machine? I believe that both contribute individually, and there is no longer any separation between a human and a machine. Welcome to the hybrid world!

This book includes Mailia software, which was released a dozen years ago, and along with it, the README file, including the concept of the project, the INSTALL instructions for installing the software on a personal server, and the GoogleSearch.wsdl file, an instruction file for the Google search engine. The book also includes part of the feedback-loop thread of emails from the Rhizome mailing list and the text about the Mailia project, written by me in 2016.

While the Mailia software is outdated and is no longer functional, the intention of the book is neither to promote the software nor to experience the replies of Mailia. I want to raise the AI questions again, to think about how far the Google search engine has evolved since Mailia was first implemented, and to compare the generated answers with the content written by real people. It could be funny, if compared with the above-mentioned software released by the OpenAI company.

In order to protect the privacy of the contributors in the email thread, their names and their email addresses have been redacted.

<div align="right">

Mindaugas Gapševičius

Berlin, 3 March 2019

</div>

* Available at https://www.forbes.com/sites/williamfalcon/2019/02/18/openais-realistic-text-generating-ai-triggers-ethics-concerns/ (Accessed: 2 March 2019).

>> readme

At present, the rapidly expanding Semantic Web analyzes digital information in order to distinguish valuable content from digital trash. In addition, modern-day search engines give more and more precise results of searched information — but how far will this artificial intelligence go? Will we eventually be able to leave it to machines to perform automated tasks such as creating images or writing texts?

For example, digital information that is delivered via email increases daily if not hourly, which, in turn, takes more and more time to answer and sort. The email answering machine provides a solution for this, as it will write the reply emails using material available online.

Mailia analyzes emails arriving in one's inbox and simply replies to them. Forget automated standard "out of office" replies; Mailia is as intelligent as software like Eliza and as flexible as open-source products. The email answering machine works in the following way: it grabs an incoming message, analyzes it, sends requests to the Google search engine, then picks up given results, sorts them, and outputs the information into an email form that is sent back to the sender. If answers are publicly saved, search engines will index the answers again and utilize them as output for other similar replies. Ironic as this question may seem, "Why not let the machines live their own lives?"

Mailia is free software released under the GNU General Public License.

-- mi_ga <mi_ga@o-o.lt> Tue, 21 Mar 2006

>> mailia

I developed the software piece Mailia in 2006, which carries aesthetics of the pure "digital," as the work is indistinguishable from the computer networks and screens displaying the results of computational activity. Nevertheless, this work could evoke thoughts of artificial intelligence, or express disenchantment with digital information systems if considered from the perspective of digital waste.

Mailia could be considered a simple piece of software designed to answer emails. The encounter with Mailia is neither visual nor aural. It is rather a process, a life situation that only exists for the primary "audience" (i.e., the participants / actors). A sender / receiver of a given email and a machine are involved in the process. After sending an email to someone, the sender would expect some answer. If there is a Mailia machine involved, the answer would be generated by a machine. This answer is a sort of "out of office" reply.

Over the course of its existence, Mailia generated[1] replies from Google search results and, along with those results, included the original message in a standard reply form.

The machine was designed in such a way that keywords taken from the incoming email would be processed through the Google API in order to find related information on the World Wide Web and to generate a reply message from content available on the net. In an imagined framework where two

1   The Mailia machine used Google API to search for related information on Google servers. Since 2008, the API is no longer supported, and Mailia has therefore stopped functioning.

Mailia machines would be involved, the process would only be executed in a virtual environment. In the description of the software, I wrote that "if answers are publicly saved, search engines will index the answers again and utilize these as output for other similar replies" (mi_ga 2006). Consequently, databases would grow over time with newly generated content and, henceforth, would evolve in terms of content-oriented or qualitative change.

For testing purposes, Mailia was installed in my personal server with configured email services. The answers generated by the machine provoked people to continue interaction with the machine in different ways, including writing emails to various mailing lists to which my personal email address was subscribed. In such a way, every time people would write an email to a certain mailing list, the machine would immediately generate an answer in response to the email sent. A random "tester" sent an email to my mailbox with the Rhizome mailing list[2] address registered as the sender's address. This resulted in an endless loop between the mailing list and the Mailia machine, which, in turn, generated some 5,000 reply emails back to the Rhizome mailing list, ending with a couple of million further emails in total sent to the subscribers.[3] If, say, there had been a number of machines running the same software, those machines could have started exchanging messages among themselves, producing even more content while replying to each other's emails. It is easy to imagine that such stimulus-response behavior or communication between computers would rapidly flood and break networks with unsolicited data traffic, as happened with the Rhizome mailing list.[4] However, if the system were self-aware and self-reparable, the continuing discussion would probably lead us to yet another dimension – the possibility of a living machine or the possibility of a machine becoming as creative and as intelligent as a human being.

Having introduced the Mailia framework, the message behind the artwork leads to at least three threads that are developed further: 1) shared work between machines and humans, 2) (un)controlled information exchange in artificial networks, and 3) the production of unsolicited digital information (or SPAM).

The first thread – a shared work between machines and humans – opens up a framework where tasks normally fulfilled by humans are outsourced to machines. Even if the proposed set-up has an ironic connotation and could be

2   For the Rhizome mailing list, see http://www.rhizome.org.

3   According to Mark Tribe, one of the moderators of Rhizome Raw, the list had about 400 subscribers in 2000, and it is assumed that, by 2006, the number had not changed dramatically. The reference is available at http://www.afsnitp.dk/onoff/Texts/tribearchivingne.html (Accessed: 24 March 2014).

4   Reported by Patrick May, Director of Technology at Rhizome.org. The report is available at http://rhizome.org/discuss/view/21166/ (Accessed: 24 March 2014).

seen from the perspective of speculative design, in theory, a number of emails could be answered by a machine. For example, a machine analyzes incoming email and determines that the request is to share personal moments in life; the machine then performs a search of the personal calendar, analyzes recently produced content, and sends back a corresponding answer. Finally, the task is fulfilled by a machine.

Let us take a more concrete example, a Mailman system designed to distribute emails to a list of email addresses. If the sender of the email is not supposed to send email directly to the list of emails configured in the Mailman system, the Mailman system would define it and would send a generated answer to the sender, indicating that he or she had to wait until the administrator of the list approved the email. Another option would be that the sender rejects the sent email by clicking on a link provided.

A straightforward analogy can also be made here with the ELIZA software, built by Joseph Weizenbaum between 1964 and 1966 (Weizenbaum 1966). This software, which simulates a psychotherapist, illustrated the concept of the Turing Test (Turing 1950), demonstrating that, if a human communicating with a machine does not realize that he or she is communicating with a non-human, then that machine must be intelligent. The Turing Test is meant to be an intellectual or psychological test showing that an artificial machine could be as intelligent as a human.

A more poetic analogy to Mailia is one of the earliest software pieces, LoveLetters, a program written by software engineer Christopher Stranchey in the early 1950s (Stranchey 1952). The software generated letters from a collection of words allocated to different word pools, like databases of textual material. Parallel to its digital nature, LoveLetters was manifested in a relatively traditional format, in the form of letters that were scattered around Manchester University, where the software had been developed. Such a manifestation was supposed to question the reader who was behind those letters. As is possible to imagine, the answer to that question was not evident, because neither were computers ubiquitous nor were the signed initials on the letters identifiable.

Although Mailia did not have any material output, the "collaboration" between machines and humans was expressed in such a way that Mailia replaced humans while answering emails, and humans contributed with initial databases of textual material – either writing an email or, as in this case, storing information on the Internet so that Mailia could perform searches and find relevant content for replies.

The second thread – (un)controlled information exchange in artificial networks – utilized the idea of interaction between digital machines. For example, a random email was sent to a mailbox with the Mailia system installed in it; Mailia would analyze its content, search for related information on the Google search engine, and, in reply to the email, would include an additional couple of new lines found through the Google search engine. Providing

replies for further searches, say, through the Mailman archiving system, the newly generated reply would include information that might have been sent at the beginning of the thread.[5] To simplify, if an initial email message delivered to Mailia consists of *a*, *b*, and *c*, in reply, Mailia might generate *ad*, *be*, and *cf*, and the next answer could be *dg*, *eh*, and *fi*, and in a later reply, there could happen to be *ga*, *hf*, and *ic*. In such a setting, several Mailia machines could enter into continuous stimulus-response behavior, which, in turn, could be considered as communication between artificial machines, or, even further, as a setting for an artificially intelligent social system.

On the other hand, considering the Mailia setting from the quality of the replies delivered, the viewer should come up with the third thread introduced – the production of unsolicited digital information (or SPAM). This thread refers to the critique of top-down social and political systems over questions such as etiquette within networked society, rapidly growing digital content, and, in a broader sense, technological development.

Considering Mailia in the SPAM context, thousands of Mailia emails sent over the Rhizome mailing list, it was not intended that the reader be annoyed by spam-like emails; instead, he or she was meant to consider the imperfection of the machine and worthless digital information. What happens with, for example, rapidly increasing digital content? Should it be stored, systematized, or maybe deleted? Being a strong example of SPAM art, Mailia does not answer such questions. Instead, it invites the viewer to consider the development of technology in parallel to humanity.

Considering Mailia from the perspectives introduced above, an environment where a machine interacts with another machine and produces stimulus-response situations could be used in further simulating life-like behavior and situations. If the first thread of Mailia leads to the acknowledgment of artificial intelligence discourse as referring to a top-down brain model, the second thread suggests operation within an artificial-life territory, focusing on biological bottom-up processes that suggest self-organized frameworks. For instance, if I were to consider several Mailia machines communicating among themselves, the content of the reply messages would evolve over time into something new, considering the content of the reply messages. Mailia machines generating *dg*, *eh*, and *fi*, or *ga*, *hf*, and *ic* messages tend to compile content reflecting previously given content and, in turn, generate a contextual discourse. Such a framework would be more explicit if additional methods were used to either systematize or visualize content.

Now, even if it has been stated that one of the three threads (listed above) describes the Mailia system as linked to SPAM, emergence through interaction between machines might also generate valuable content. The following

5   For concrete examples, refer to http://triple-double-u.com/mailia/?s=feedback (Accessed: 25 April 2015).

pro-jects are examples of similar work: *net art generator,* by Cornelia Solfrank (Solfrank 1999); a collaborative work of mine titled *asco-o* (mi_ga & d2b 1999); another work of mine called *carpet/?s* (mi_ga 2006); and Alan Sondheim's *Internet Text* series (Sondheim 1994–present). In the first example, *net.art generator,* Solfrank offered software that generated personalized websites according to the names entered into the website form. In the case of *asco-o,* the content was often manually copied from existing websites, then triggered with the automated programs and then sent back to the mailing list as a new ASCII image. The project *carpet/?s* is a fully automated system producing

ASCII patterns from the content found at the very moment the website is

visited. In addition, the *Internet Text* series by Alan Sondheim is, in most cases, a triggered variation of computer terminal output.

All in all, the works are comprised of slightly changed or rearranged content that is reintroduced as new content created by an artist who shares creative work with or allocates some creative tasks to a machine. Having said this, the Mailia machine is in the position to create, or otherwise, to be a collaborator with the artist, or maybe even to be an artist itself.

References

1.   mi_ga (2006). "Mailia." Available at: http://www.triple-double-u.com/mailia (Accessed: 16 March 2014).

2.   mi_ga & d2b (1999). "Asco-o." Available at: http://www.asco-o.com (Accessed: 23 March 2014).

3.   Solfrank, C. (1999). "Net.art generator." Available at: http://www.obn.org/generator/ (Accessed: 25 April 2015).

4.   Sondheim, A. (1994–present). "Index of /." Available at: http://www.alan-sondheim.org/ (Accessed: 22 March 2014).

5.   Stranchey, S. (1952). "LoveLetters." Available at: http://www.gingerbeard-man.com/loveletter/ (Accessed: 25 April 2015).

6.   Turing, A. M. (1950). "Computing Machinery and Intelligence" in Mind, 49: 433–460. Available at http://www.csee.umbc.edu/courses/471/papers/turing.pdf (Accessed: 25 April 2015).

7.   Weizenbaum, J. (1966). "ELIZA – A Computer Program For the Study of Natural Language Communication Between Man And Machine," in Communications of the ACM, 9: 36–45.

>> license

Mailia licensing conditions. Document version 1.00, 21-02-2006
Mailia is free software under the terms of the GNU General Public
License.

-- mi_ga <mi_ga@o-o.lt> Tue, 21 Mar 2006

                    GNU GENERAL PUBLIC LICENSE
                       Version 2, June 1991

   Copyright (C) 1989, 1991 Free Software Foundation, Inc.
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                            Preamble

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software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software
Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Library General Public License instead.) You can apply it to
your programs, too.

   When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it

>> install

INTRODUCTION
============

As you have downloaded this package you seem to know already about Mail-
ia.
If you don't, visit http://triple-double-u.com/mailia where you can find
many useful
information.

This short guide lists the important steps to install this package.

STEP BY STEP
============

```
1 Prepare your system. If you do not have root access rights, please
  ask your admin to install missing packages
  a) Check if you have Perl on your system:
  $ whereis perl
  b) Check if you have Procmail on your system:
  $ whereis procmail
  c) Check if you have Cpan on your system:
  $ whereis cpan
  d) Install required Perl modules
  $ cpan
  cpan> install Email::Abstract
  cpan> install MIME::Base64
  cpan> install MIME::Tools
  cpan> install MIME::Parser
  cpan> install Text::ParseWords
  cpan> install LWP::UserAgent
  cpan> install SOAP::Lite
```

>> mailia.pl

```perl
#! /usr/bin/perl -X

my $key = "xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx"; # an authentication key
received from Google
my $cReply = "Re: ";

my $MESSAGE = read_message();
my $subject = $cReply." ".get_subject( $MESSAGE );
my $sender = get_sender_address( $MESSAGE );
my $to = get_to_address( $MESSAGE );
my $body = get_email_body( $MESSAGE );
my @words = get_words( $body );
my $searchstring = get_search_string( @words );
my $atsakymas = google_search( $searchstring );

my $reply_body = set_body_to_reply( $body ); # add "> " to every line in
a reply message
$reply_body = $atsakymas."\nmailia\n\n".$sender." wrote:\n> ".$reply_
body;
send_reply( $sender, $to, $subject, $reply_body );

#-------------------- DEBUG
#print $subject;
#print $body;
#$i = 0;
#foreach (@words) {
#    $word = $_;
#    print "$word\n";
#    $i++;
#}
#print "\n";
#print $searchstring;
#print $atsakymas;
```

>> googleSearch.wsdl

```xml
<?xml version="1.0"?>

<!-- WSDL description of the Google Web APIs.
     The Google Web APIs are in beta release. All interfaces are subject
to
     change as we refine and extend our APIs. Please see the terms of use
     for more information. -->

<!-- Revision 2002-08-16 -->

<definitions name="GoogleSearch"
             targetNamespace="urn:GoogleSearch"
             xmlns:typens="urn:GoogleSearch"
             xmlns:xsd="http://www.w3.org/2001/XMLSchema"
             xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
             xmlns:soapenc="http://schemas.xmlsoap.org/soap/encoding/"
             xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
             xmlns="http://schemas.xmlsoap.org/wsdl/">

  <!-- Types for search - result elements, directory categories -->

  <types>
    <xsd:schema xmlns="http://www.w3.org/2001/XMLSchema"
                targetNamespace="urn:GoogleSearch">

      <xsd:complexType name="GoogleSearchResult">
        <xsd:all>
          <xsd:element name="documentFiltering"            type="xsd:-
boolean"/>
          <xsd:element name="searchComments"               type="xs-
d:string"/>
          <xsd:element name="estimatedTotalResultsCount"  type="xs-
d:int"/>
```

From: nigne[at]9xhi1ow.net
To: list[at]rhizome.org
why do morons with brains the size of a pin have
to hold the rest of us
hostage like this generative shit........
I already quit one board because of this shit...
I love rhizome
it is now hostage of some jackass with an iq of a
single digit.......
fucking bullshit
+
-> post: list[at]rhizome.org
You can forward this message to:
l̩æ?l̩æ? l̩æ?webmaster[at]rhizome.org
Cheers,
----- Original Message -----
From: "beate zurwehme"
To:
Sent: Monday, April 10, 2006 12:23 PM
Subject: Re: RHIZOME_RAW: Re:
>
> no, please don't ban him from the list. i think,
automatic spam "art"
> is even better than naming others as "idiots".
>
> hier gehts um die
freiheit der netze!
>
>
> Am 10.04.2006 um 12:18 schrieb Sofia Oliveira:
>
> please get rid of this idiot!
>
> ----- Original Message -----
> From:

+

that is it

I am proceeding with legal action

funny how a coward can be so easily traced

+

Hello,

As mailia appears to be caught in a mail loop,
endlessly spamming the
list, I have put the "mi_ga[at]o-o.lt" address on
hold.

Cheers,

Patrick

>> mailia / http://triple-double-u.com/mailia

Date: Thu, 23 Mar 2006 02:54:34 +0100
From: =?ISO-8859-1?Q?=A4?= <mi_ga[at]o-o.lt>
To: rhizome <list[at]rhizome.org>
Subject: RHIZOME_RAW: mailia / http://triple-double-u.com/mailia

At present the rapidly expanding Semantic Web analyzes digital information in order to distinguish valuable content from digital trash. As well modern day search engines give more and more precise results of searched information yet how far will this artificial intelligence go? Will we eventually be able to leave it to machines to perform automated tasks such as creating images or writing texts?

For example digital information that is delivered via email increases daily if not hourly which in turn takes more and more time to answer and sort. The email answering machine provides a solution for this as it will write the answer emails using material available online.

Mailia analyzes emails coming to ones mailbox and simply replies to them. Forget automated standard 'Out of Office' replies, Mailia is as intelligent as software like Eliza and as flexible as open source products. The email answering machine works in the following way: it grabs an incoming message, analyzes it, sends requests to the Google search engine, then picks up given results, sorts them, and outputs the information into an email form which is sent back to the sender. If answers are publicly saved, search engines will index the answers again and utilize these as output for other similar replies. Ironic as this

statement may seem - 'Why not let the machines live their own lives'.

Mailia is free software released under the GNU General Public License.

-- mi_ga. Tue, 21 Mar 2006

From: mi_ga[at]o-o.lt
To: list[at]rhizome.org
Subject: RHIZOME_RAW: Re: mailia
Date: Thu, 23 Mar 2006 03:50:02 +0000 (GMT)

The deadline for withdrawal of abstracts is January 20, 2006. ...
2001-2006 American College of Medical Genetics. All rights reserved ...
Deadline for submitting list of 23 players remains 15 May 2006 ·
Referees enter final FIFA World Cup preparation phase · More
Releases · Media Channel ...
Leaders Announced for 2007 Rose Parade and Rose Bowl Game · Paul
Holman Elected President of 2007 Tournament of Roses® · 2006
Rose Bowl Earns Championship ...

mailia

list[at]rhizome.org wrote:
> DIGITAL DIFFERENCE: RECONTEXTUALIZING NEW MEDIA ART
>
>Chair: Juliet Davis, University of Tampa, 302 49th St. N., St.
Petersburg, FL 33710
>
>
>From fine-art games to electronic literature, new media have introduced
>
>a host of terms that might seem contradictory in the context
>
>of traditional art scholarship and cultural studies. While some
>
>writers have made cases for new media as extensions of art and

> Sent: Sunday, April 09, 2006 7:49 AM
> Subject: RHIZOME_RAW: Re:
>
>
> >
> > mailia
> >
> > list[at]rhizome.org wrote:
> >> good stuff
> >>
> >>
> > +
> > -> post: list[at]rhizome.org
> > -> questions: info[at]rhizome.org
> > -> subscribe/unsubscribe: http://rhizome.org/preferences/subscribe.
rhiz
> > -> give: http://rhizome.org/support
> > +
> > Subscribers to Rhizome are subject to the terms set out in the
> > Membership Agreement available online at http://rhizome.org/info/29.
php
> >
>
> +
> -> post: list[at]rhizome.org
> ->
  questions: info[at]rhizome.org
> -> subscribe/unsubscribe: http://rhizome.org/preferences/subscribe.rhiz
> -> give: http://rhizome.org/support
> +
> Subscribers to Rhizome are subject to the terms set out in the
> Membership Agreement available online at http://rhizome.org/info/29.
php
>
> +
> -> post: list[at]rhizome.org
> -> questions: info[at]rhizome.org
> -> subscribe/unsubscribe: http://rhizome.org/preferences/subscribe.rhiz
> -> give: http://rhizome.org/support
> +
> Subscribers to Rhizome are subject to the terms set out in the
> Membership Agreement available online at http://rhizome.org/info/29.
php
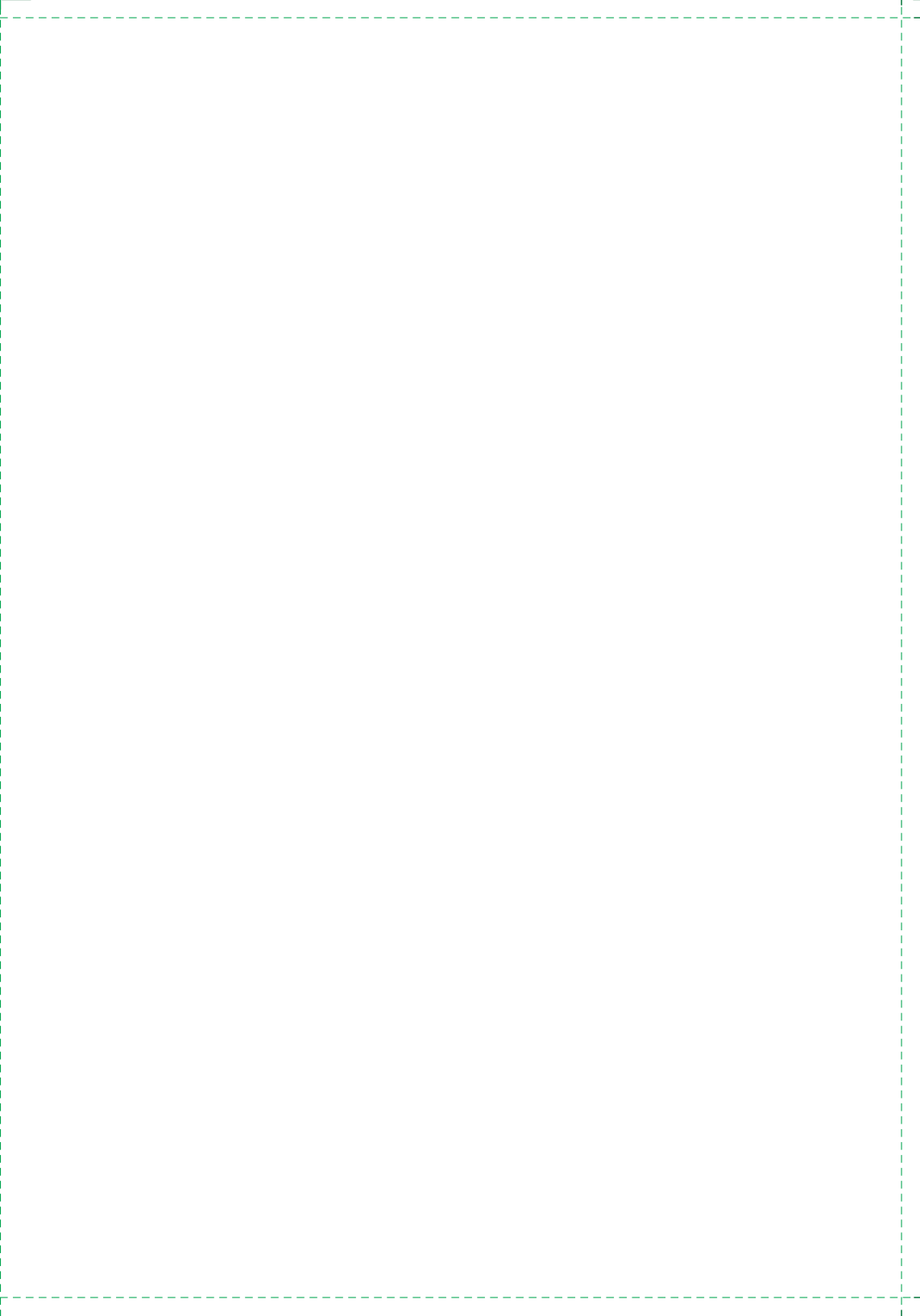>

```perl
                    $atsakymas .= "\n";
                    } else {
          # nothing found
                    }
            }
        }
        } else {
      # nothing found
        }
    }
    return $atsakymas;
}
#---------------------
sub get_search_string {
    my ( @words ) = @_;
    my $length = $#words;
    my $a = rand($length);
    my $b = rand($length);
    my $c = rand($length);
      my $searchstring = $words[$a]."
".$words[$b]." ".$words[$c];
    return $searchstring;
}
sub get_words {
    use Text::ParseWords;
    my ( $text ) = @_;
      my @words = &quotewords('\s+', 0,
```

```perl
sub                    get_words                         {
                use      Text::ParseWords;
            my     (      $text     )     =      @_;
 my @words = &quotewords('\s+', 0, $text);
                        return          @words;
}
# - - - - - - - - - - - - - - - - - - - - -

sub              get_to_address                          {
                use       Email::Abstract;
            my(      $MESSAGE      )      =      @_;
            my     $sender     =      Email::Ab-
stract->get_header(   $MESSAGE,   "To"   );
                        return          $sender;
}
# - - - - - - - - - - - - - - - - - - - - -

sub              get_sender_address                      {
                use       Email::Abstract;
            my(      $MESSAGE      )      =      @_;
            my     $sender     =      Email::Ab-
stract->get_header(   $MESSAGE,   "From"   );
                        return          $sender;
}
# - - - - - - - - - - - - - - - - - - - - -
sub                  get_subject                         {
                use       Email::Abstract;
            my(      $MESSAGE      )      =      @_
```