

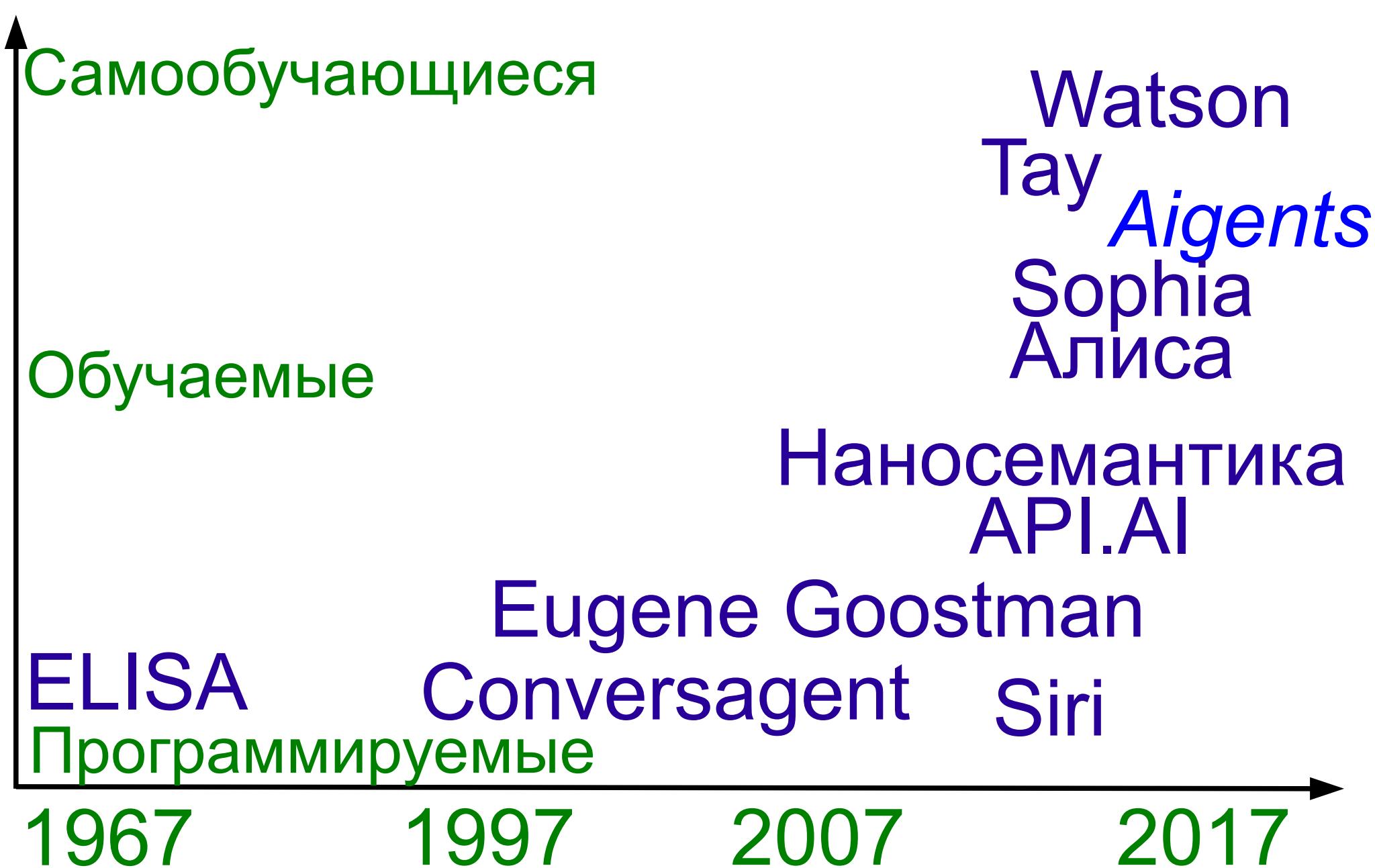
Чат-боты – кто они?



**Алиса, Sophia,
Евгений и Тау и
Siri, вся жизнь моя
вами, как солнцем
июньским согрета...**

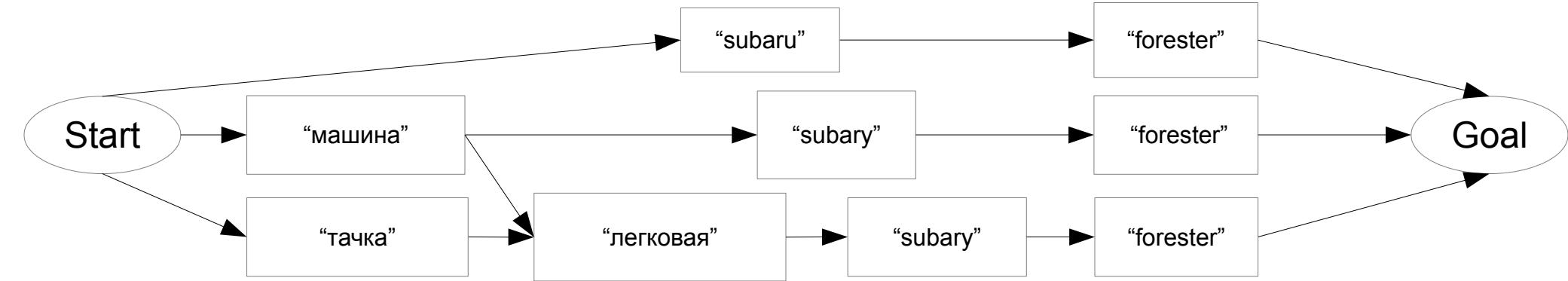
Антон Колонин, akolonin@aigents.com

Чат-боты - какие бывают?

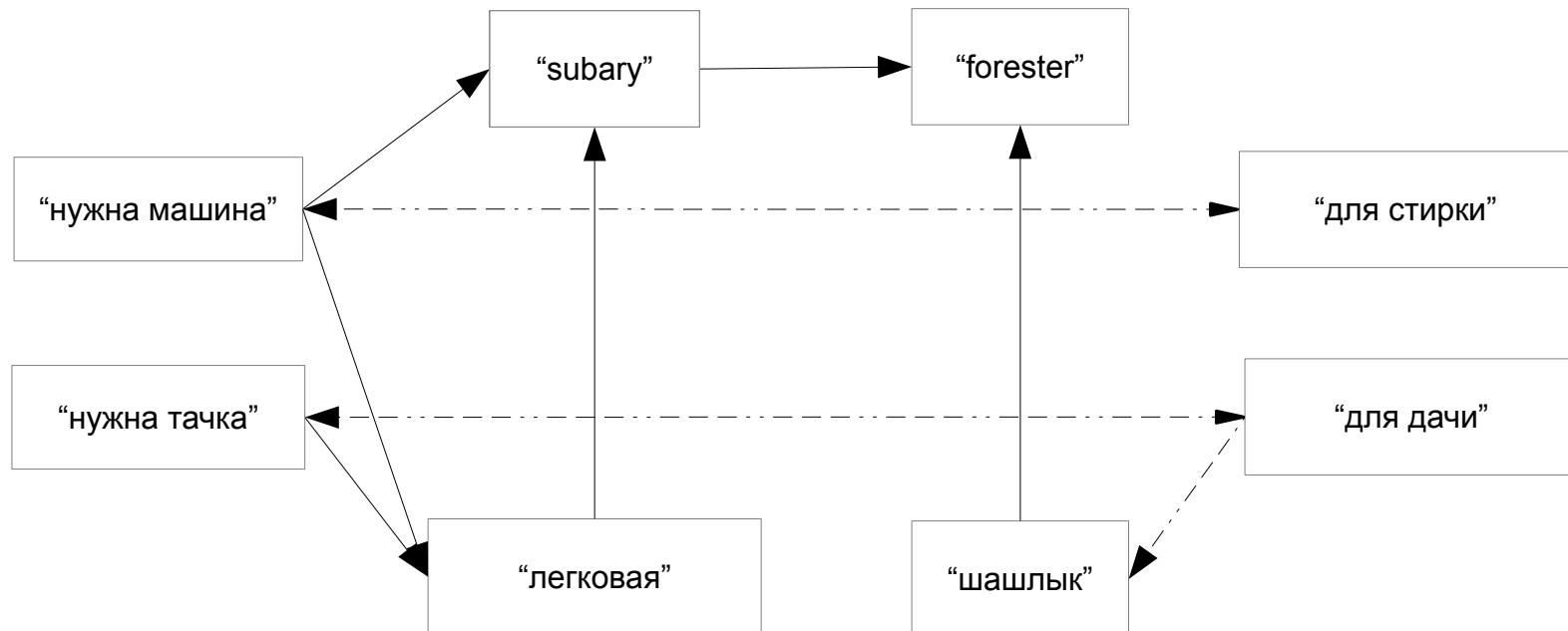


Программирование или самообучение?

Программирование сценариев диалога (ELISA, Eugene, Siri, Алиса, Sophia)



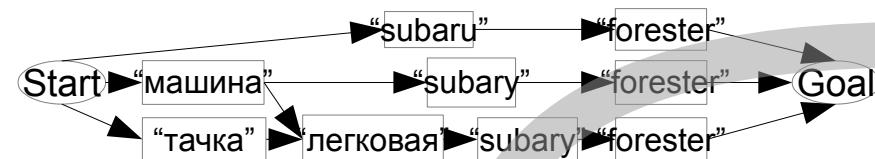
Самообучение сетей на диалоговых корпусах (Watson, Tay, Алиса, Sophia)



Учить надо, прямо как детей!?

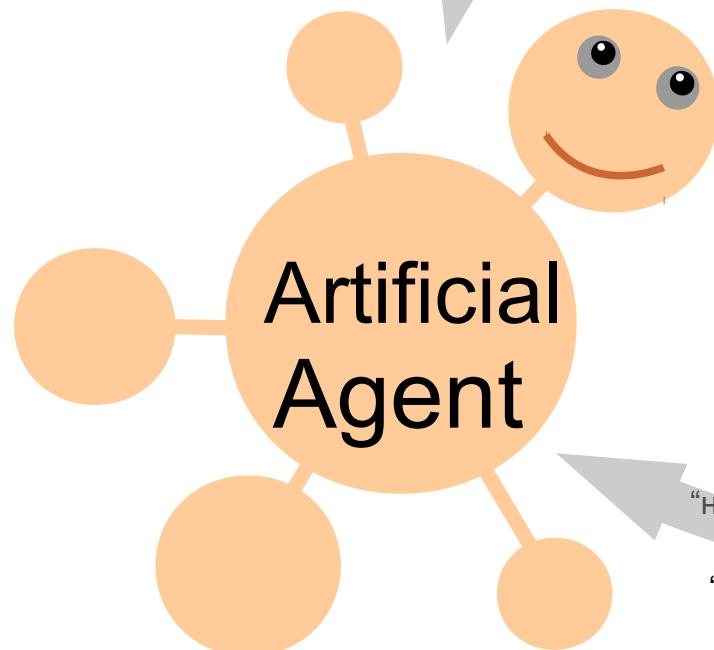
Программирование сценариев:
Scripting with Chatscript,
Buddyscript, API.AI API etc.

Инкрементальное обучение
с подкреплением:
Incremental experiential
reinforcement learning

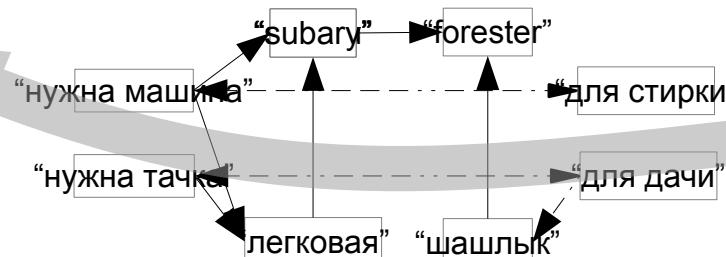


“Ложка это ложка,
Ложкою суп едят.”

“Что такое хорошо и
что такое плохо?”

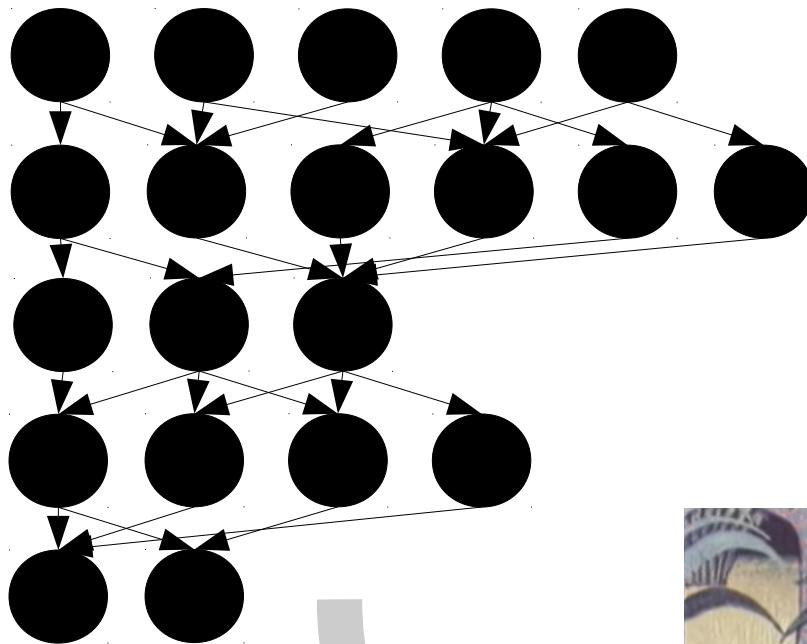


Самообучение сетей на корпусах:
Unsupervised learning on controlled corpora



Какие сети учить будем?

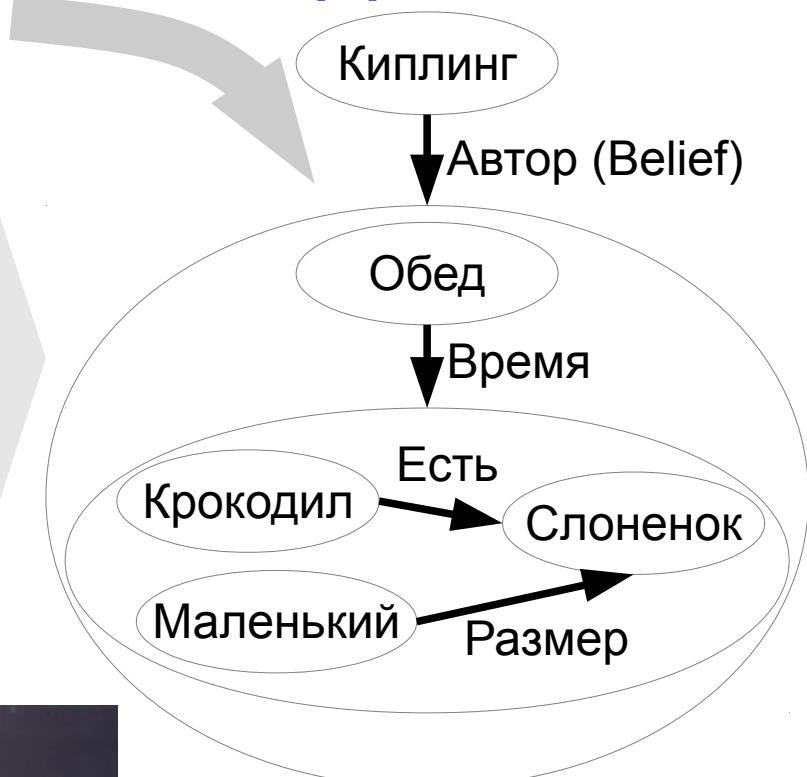
Что едят крокодилы за обедом?



Language learning,
Domain knowledge acquisition,
Symbolic-subsymbolic grounding



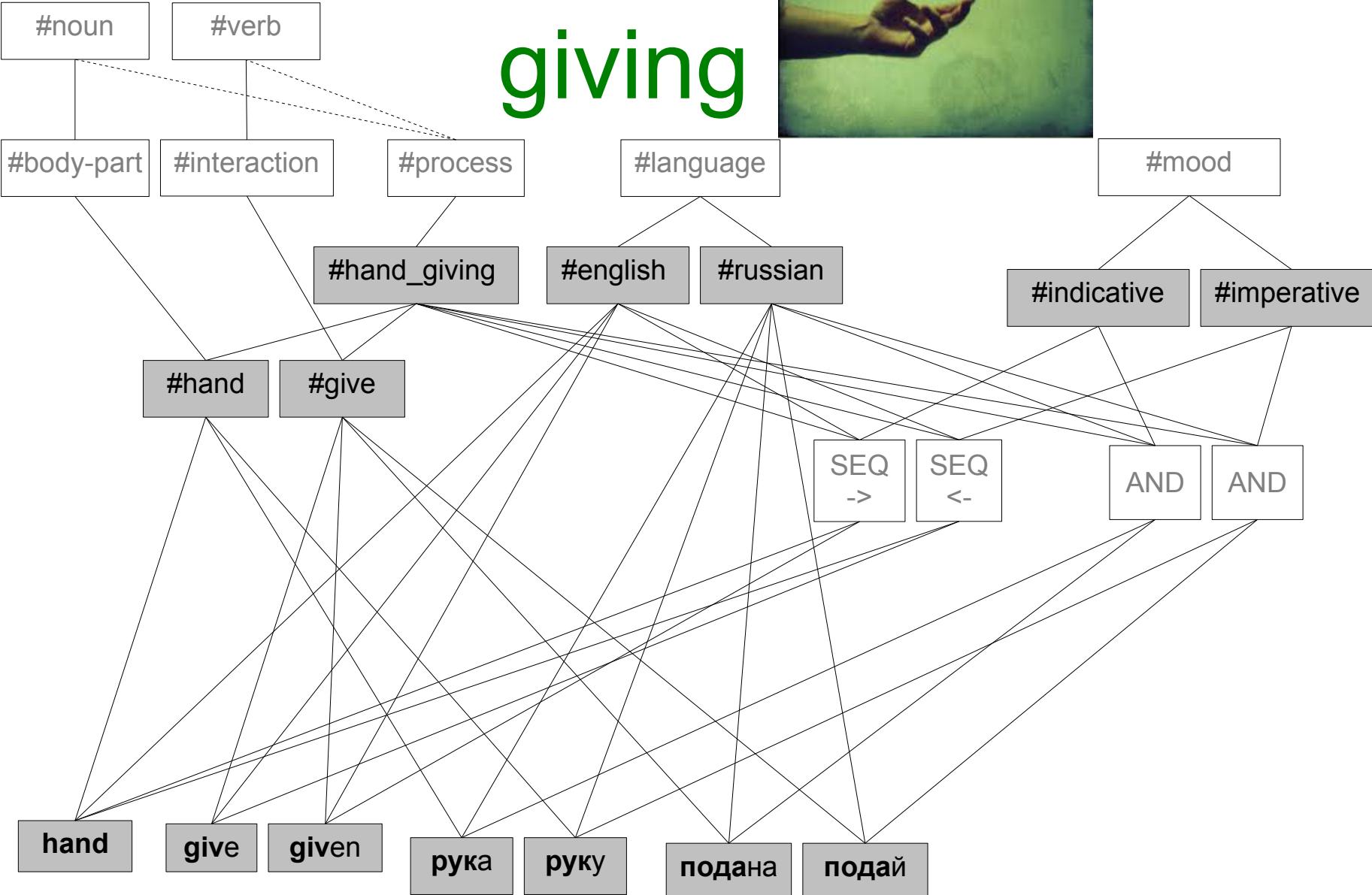
Нейронные сети,
см. “перцептрон”
(Subsymbolic AI)



Онтологии,
семантика,
Гиперграфы
(Symbolic AI)

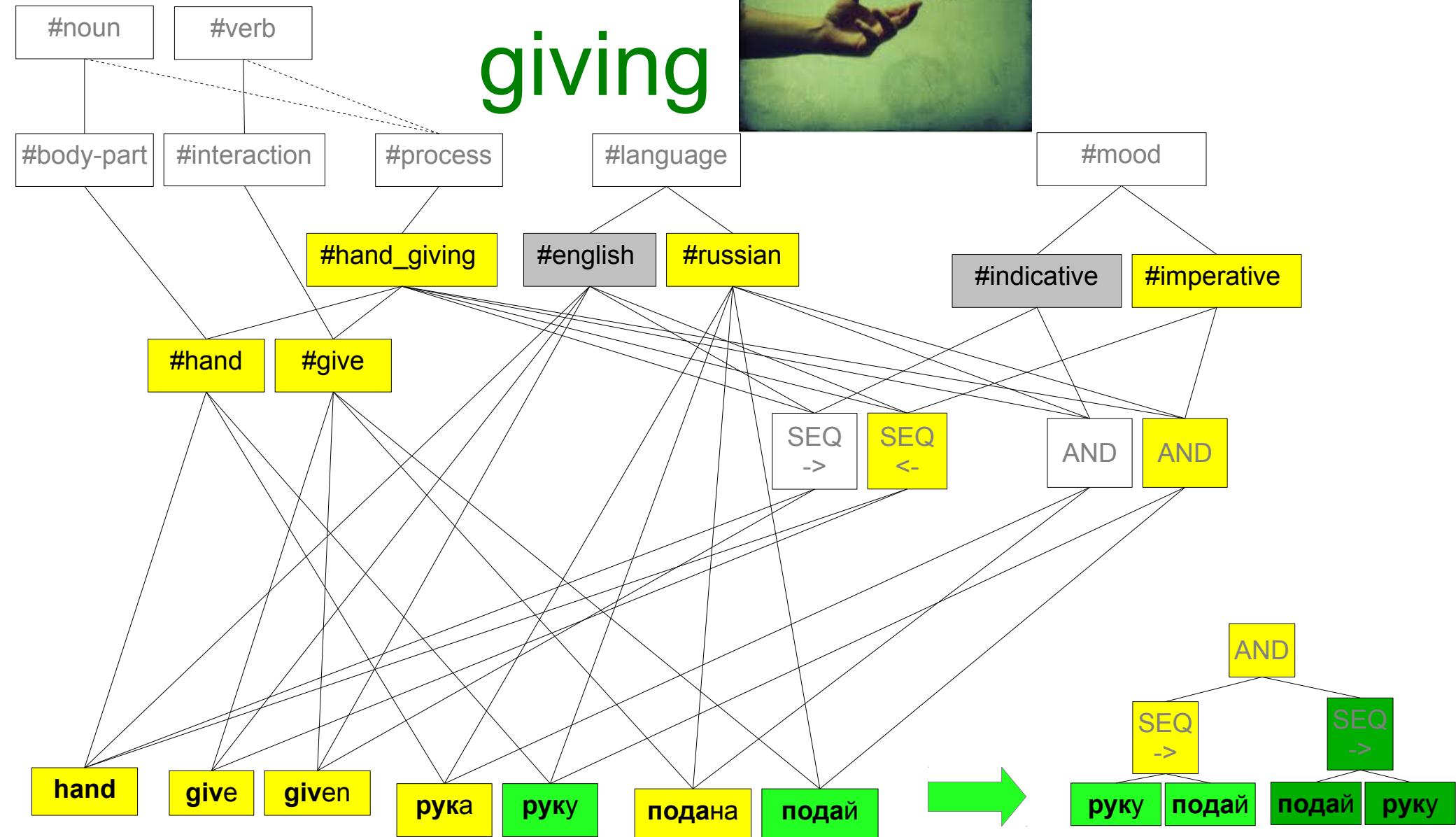
Grammar & Ontology Graph

Hand giving



Grammar & Ontology Graph Expression

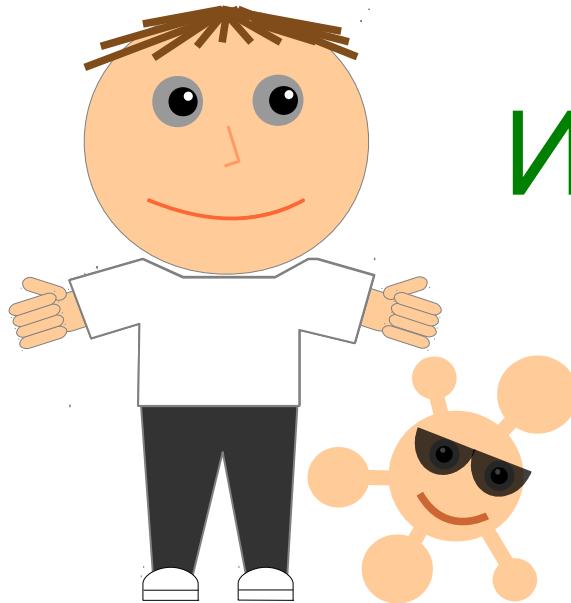
Hand giving



Зачем нужны эти боты?



Потребитель



Бот-компаньон

Бизнес



Бот-референт

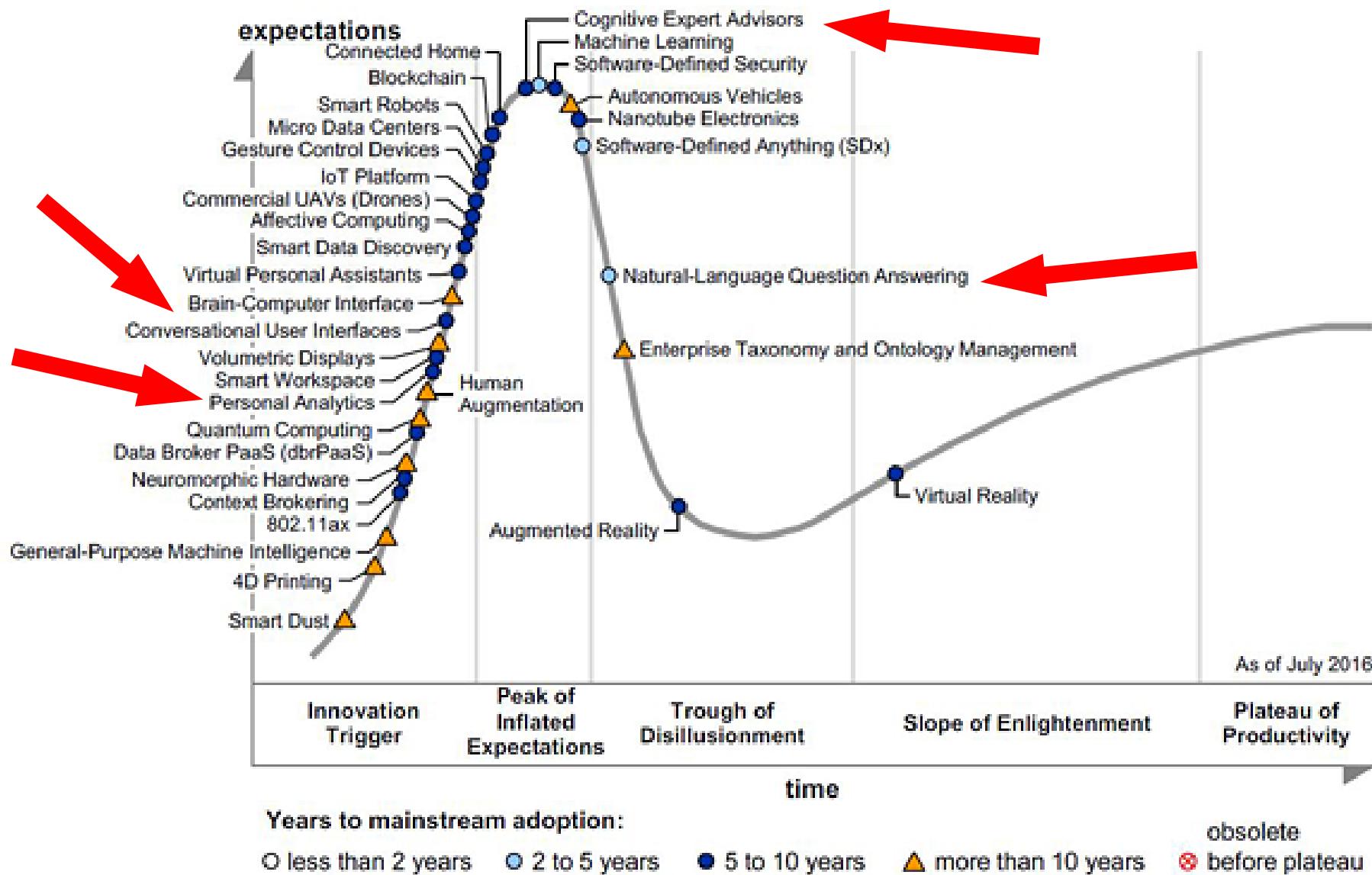
Бот-продавец

Что они смогут?



Каково их будущее?

(по Гарнэр)



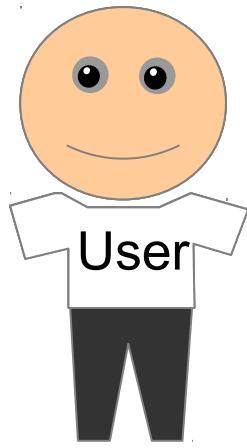
Source: Gartner (July 2016)

Aigents - Semantic Chat Bot - Channels

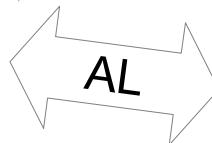
Chat Bot:
Terminal
Web
Telegram
Facebook

```
SAY:My email doe@john.org.  
GET:What your pet name?  
SAY:My pet name Toby.  
GET:Ok. Hello John Doe!  
My Aigents 1.1.0 Copyright © 2015 Anton Kolonin, Aigents Group.  
SAY:What my keeping days, sensitivity threshold, update time, check cycle?  
GET:Your check cycle day, keeping days 10, sensitivity threshold 8 0, update time 9:00.  
SAY:No there is storm, times today.  
GET:Ok.  
SAY:My knows storm.  
GET:Your knows temperature.  
SAY:My knows no temperature.  
GET:Ok.  
SAY:What my knows?  
GET:Your not.  
SAY:No name temperature, name storm.  
GET:Ok.  
SAY:No name scale, name value, name region.  
GET:Ok.
```

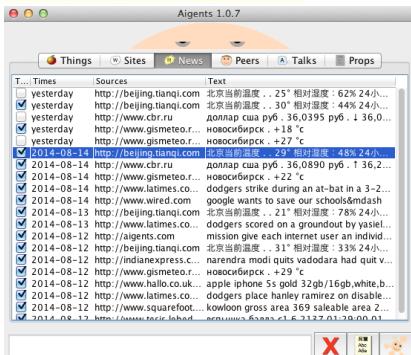
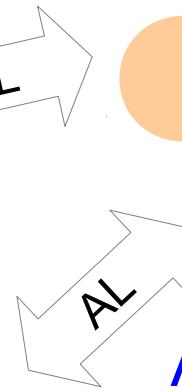
Mobile UI



Server Web UI



Desktop UI
(Windows, Mac, Linux)

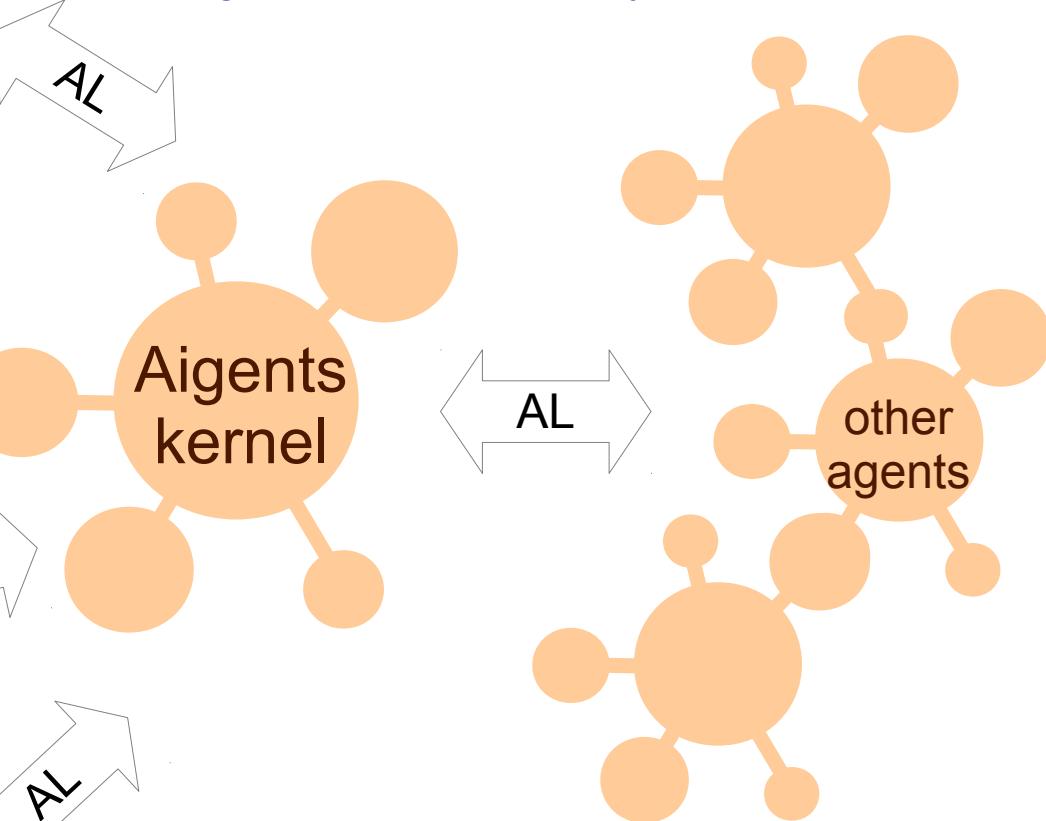


Example:

https://aigents.com/test/aigents_turing_test.html

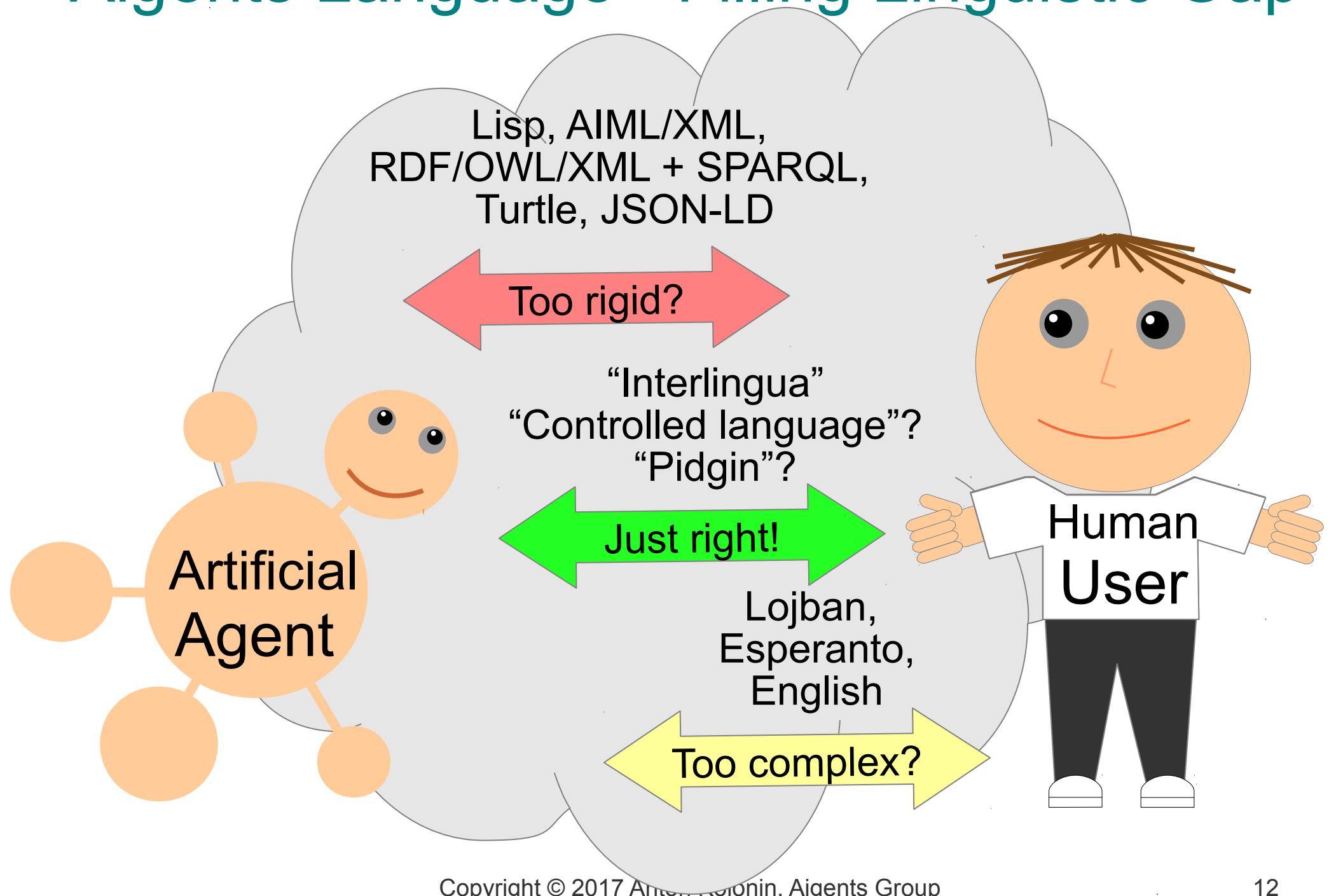
Demo:

<https://aigents.com/al?what your name>



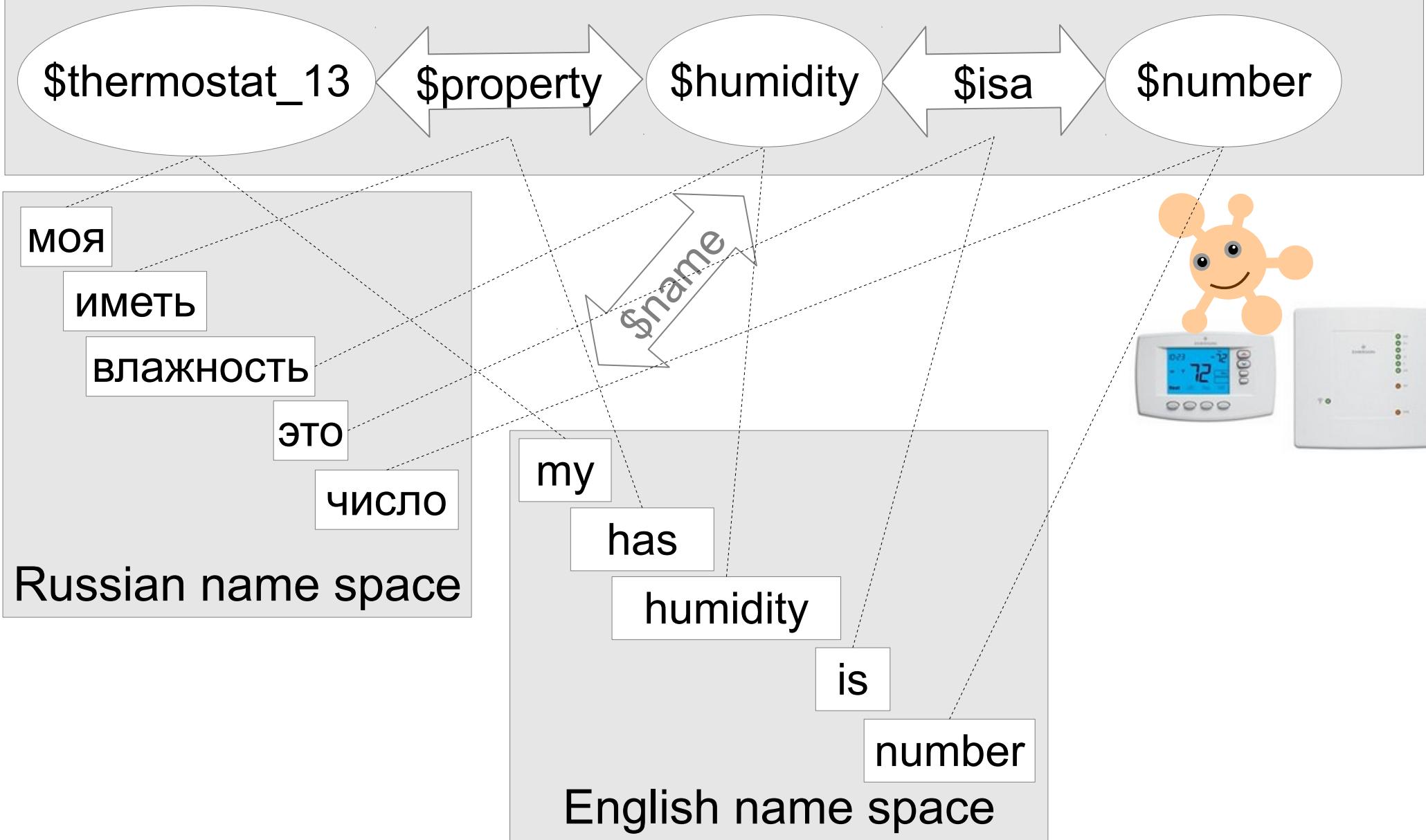
AL – Aigents Language
“Controlled Language”, used for communication between humans and agents

Aigents Language - Filling Linguistic Gap



Aigents Language – as labeled ontology

Common domain-specific ontology for “controlled interlingua”



Aigents Language - for graph manipulation

Interrogation:

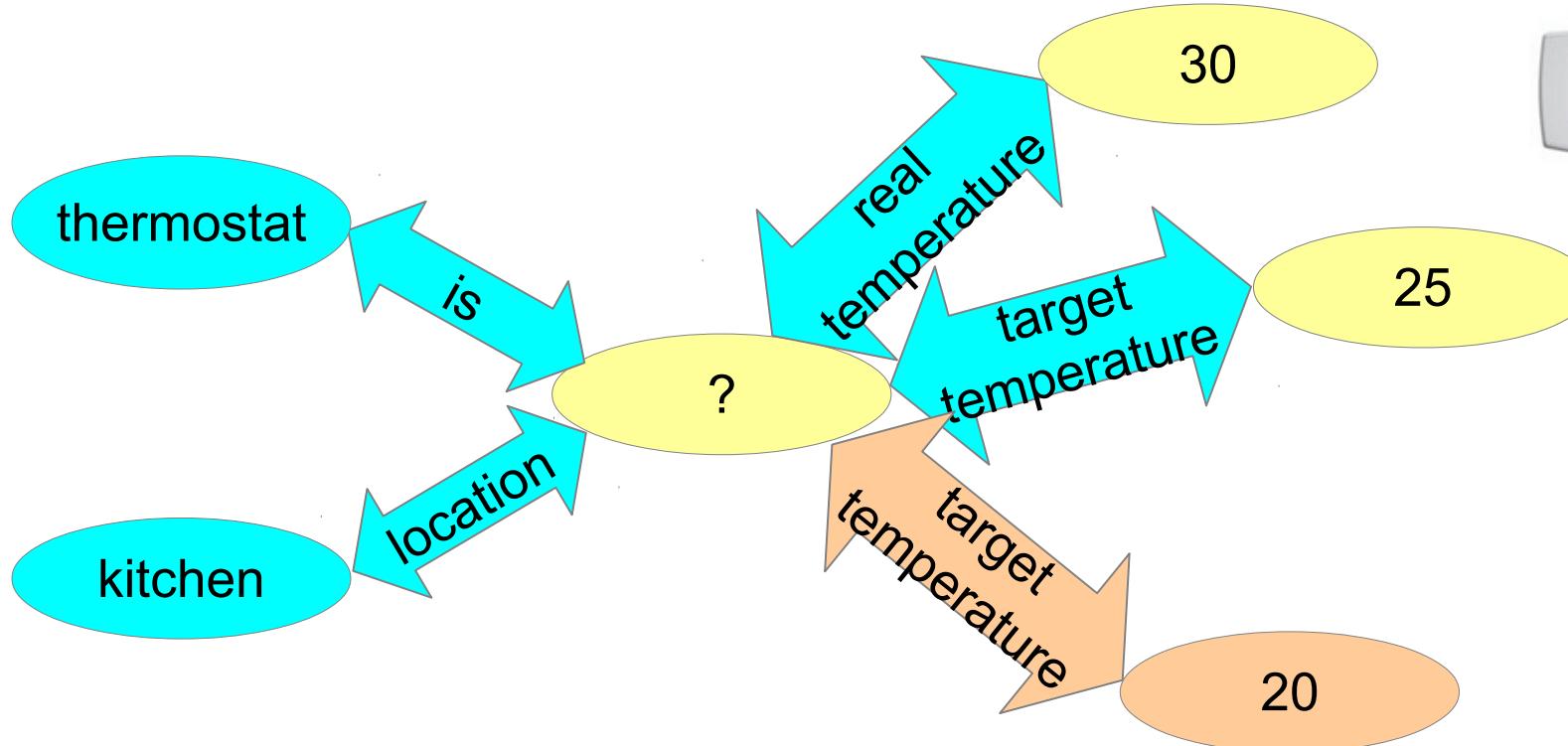
What is thermostat, location kitchen real temperature, target temperature?

Declaration:

Is thermostat, location kitchen real temperature 30, target temperature 25.

Direction:

Is thermostat, location kitchen target temperature 20!



Aigents Language - “pidgin” example

A: My is appliance, agent, thermostat, device.

A: My has shape, color, voltage.

A: My has location.

A: My shape rectangular, color white, voltage 220, location kitchen.

A: My has temperature, humidity, CO2, feeling.

A: Temperature, humidity, CO2 is number.

A: Feeling is good or bad.

H: What your feeling, temperature, humidity?

A: My feeling good, temperature 20, humidity 72.



A: Моя это прибор, агент, термостат, устройство.

A: Моя иметь форма, цвет, питание.

A: Моя иметь место.

A: Моя форма прямоугольный, цвет белый, питание 220, место кухня.

A: Моя иметь температура, влажность, CO2, самочувствие.

A: Температура, влажность, CO2 это число.

A: Самочувствие это хорошо или плохо.

H: Как твоя самочувствие, температура, влажность?

A: Моя самочувствие хорошо, температура 20, влажность 72.

Aigents Language - EBNF

```
<message> := ( <statement> | <acknowledgement> )*
<acknowledgement> := ( 'ok' | ('true' | 'yes' | <number>) | ('no' | 'false' | 0) ) '.'
<statement> := <interrogation> | <confirmation> | <declaration> | <direction>
<interrogation> := 'what' ? <expression> '?'          (* "open" incomplete graph *)
<confirmation> := 'if' ? <expression-set> '?'          (* "closed" complete graph *)
<declaration> := ( <expression-set> ) '.'           (* "closed" complete graph *)
<direction> := 'do' ? <expression-set> '!'           (* "closed" complete graph *)
<expression> := <term> (' ' <term>)*                  (* separated by spaces *)
<expression-set> := <all-set> | <any-set> | <seq-set>      (* different kinds of sets *)
<term> := <negation>? ( <anonymous>? | <self> | <peer> | <id> | <name> | <value> | <qualifier> )
<qualifier> := <expression> | <expression-set>
<any-set> := <or-list> | ( '{' <or-list> '}' )
<all-set> := <and-list> | ( '(' <and-list> ')' )
<seq-set> := <next-list> | ( '[' <next-list> ']' )
<or-list> := <expression> ( (',' | 'or') <expression> )*
<and-list> := <expression> ( (',' | 'and') <expression> )*
<then-list> := <expression> ( (',' | 'next') <expression> )*
<negation> := 'not' | 'no' | '¬'
<anonymous> := ('there' ('is'|'are')) | 'any' | 'anything' ?
<self> := 'my'|'i'|'we'|'our'
<peer> := 'your'|'you'
<value> := <number> | <date> | <time> | <string>
```

That is all!
The rest is done by means of domain-specific ontology and providing national-specific name space

Aigents Language - comparisons

English

What is your feeling?
If your feeling is good?
Your feeling is good.
Have your feeling good!

Agent Language

Your feeling?
Your feeling good?
Your feeling good.
Your feeling good!

Russian (with tonal modulation)

Твое ощущение? (rising tone)
Твое ощущение хорошее? (rising tone)
Твое ощущение хорошее. (neutral tone)
Твое ощущение хорошее! (lowering tone)

Agent Language - written

I (can (eat, sleep), want (dance, sing)).
I {can (eat, sleep), want (dance, sing)}.
I (can {eat, sleep}, want {dance, sing}).
You [eat (rice, meat), drink {juice, water}]!

Agent Language - spoken

I can eat and sleep and want dance and sing.
I can eat and sleep or want dance and sing.
I can eat or sleep and want dance or sing.
You eat rice and meat next drink juice or water!

Agent Language

A C (D,E).
A (C D, F G).
A (C (D,E), F (G,H)).
(A,B) C D.
(A,B) (C (D,E), F (G,H)).

Term logic

A C D. A C E.
A C D. A F G.
A C D. A C E. A F G. A F H.
A C D. B C D.
A C D. A C E. B C D. B C E. A F G. A F H. B F G. B F H.

Turtle

A C D,E.
A C D; F G.
A C D,E; F G,H.
A C D,E; F G,H.

Aigents Language - extensions

For one example, declarative and directive expressions can be turned into conditional trees in an action graph (representing decision trees or applicable rule sets or executable programs depending on the case) with use of qualifiers and expressions involving predicates such as “then” and “else” recursively enclosed, like in the following example (note, preceding clue keyword “if” would turn the declaration of the algorithm into confirmation regarding the existence of such algorithm).

```
Your CO2_inside > CO2_outside then
    T_inside > 19 then
        Your Ventilation State Opened, Fan Speed High
    else
        Messaging message text "Alert!" to owner@localhost.home
else
    Your Fan Speed Off,
    Your Ventilation State Closed.
```

For another example, the notion of “time” and “location” can be expressed in terms of other predicates existing in the ontology of an agent specialized to handle them, as in the following example.

Your time 14:00 being not good, CO2_inside 410, Ventilation State Closed.

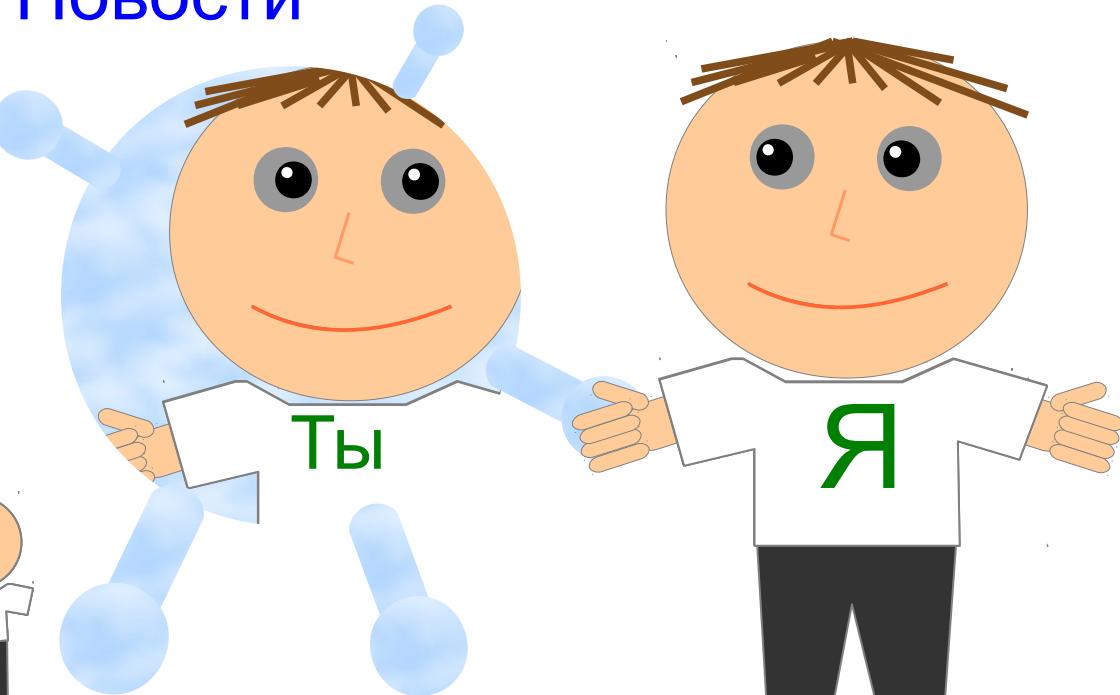
**My location city Moscow, latitude 55N, longitude 37E weather T_outside -7,
HUM_outside 95%.**

Aigents – бот и чат-бот

как “магический кристалл” в мире социально-информационных сетей, изучает ваши интересы и привычки, ваших друзей и коллег, находит то, что вам нужно и избавляет от лишнего



Новости



Steemit



Golos.io



Google+



ВКонтакте



Facebook



Друзья

Как узнать больше о себе и других с Aigents?



Что дают боты Aigents?



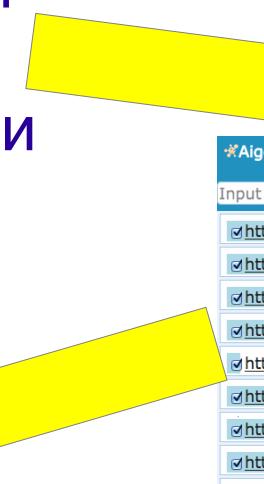
Выявление своих авторитетов и лидеров мнения, истинных друзей, а также последователей и фанатов.

Поиск новых авторитетов, укрепление связей с друзьями и коллегами, избавление от ненужных связей, а также расширение и сегментация своей целевой аудитории.

Как это работает?



Я подключаю
“виртуального агента”
к своим сетям,
сообщаю ему о своих
интересах и
источниках
информации



Agents Topics Sites 2 News Friends Chat Election Tracker G+ f vk

Input search text

today i encourage a natural and to adapt to changes here know this we do not all feel the same way about the outcome," said tibor <http://www.reuters.com/article/newsOne/idUSKBN15H2G0>

yesterday facebook ceo mark zuckerberg family used the impact of fake news as a red herring that betrayed a lack of democracy <https://www.wired.com/2017/02/trump-tech-must-cant-ignore>

yesterday Okay, Agents now can be accessible as Facebook or Telegram bot, including capability to read personal activity with ability to configure personally. For example, reflect to your personal Agents <https://www.messenger.com/t/agents> or <https://t.me/agents> by means of Web user interface) in two alternative ways. Use Facebook Agents bot at <https://www.messenger.com/t/agents> or Telegram Agents bot at <https://t.me/agents>

Лидеры Друзья Я Поклонники Похожие

*Agents Topics Sites 2 News Friends Chat Election Tracker G+ f vk

Input new peer name, surname, email

Alexander Vorf Alexey Drakunov drakunov@gmail.com *Agents Topics Sites 5 News Friends Chat Election Tracker G+ f vk

Chernyak Input new thing name or template Denis Od fake news Dmitry O [ai] [agi] [artificial intelligence] [machine learning] [искусственный интеллект] Dmitry S [chatbot] [chat bot] [personal assistant] [чат бот] [бот] [персональны] agents electoral college

*Agents Topics Sites 8 News Friends Chat Election Tracker G+ f vk

Input new site link or URL

<http://edition.cnn.com/> <http://www.cbr.ru/> <http://www.nytimes.com/> <http://www.reuters.com/> http://www.thesis.lebedev.ru/sun_flares.html <https://lenta.ru/> <https://news.yandex.ru/> <https://www.gismeteo.ru/city/daily/4368/> <https://www.gismeteo.ru/city/daily/4690/> <https://www.wired.com>

“Агент” автоматически извлекает
информацию из сети, выявляет
нужные закономерности, следит за
изменениями и оповещает меня.

С чего начать? На <https://aigents.com/>:

1. Зарегистрироваться
через соцсеть

2. Заказать отчет

3. Получить отчет

The screenshot shows a web browser window with the URL <https://aigents.com>. The page displays a search interface with a search bar and a list of news articles. The first article is from Lenta.ru and discusses Matthew Rosenberg's former national security list income from companies linked to the Trump administration. The second article is from Reuters and discusses the FBI director James Comey's investigation into the Trump campaign's collusion with Russia. The third article is from Wired and discusses Devin Nunes' role in investigating Russian interference in the 2016 presidential election. The fourth article is from Reuters and discusses the Russian government's denial of hacking emails from democratic groups. The fifth article is from Reuters and discusses Ivanka Trump and Jared Kushner's ethics filings.

The screenshot shows a web browser window with the URL <https://aigents.com>. The page displays a report titled "Отчет Aigents для Google Plus". It includes a section for "Мои интересы" (My interests) with a table showing topics and their publication counts, and a section for "Интересы моих друзей" (Friends' interests) with a table showing friends and their interests. The main content area shows a list of reports with titles like "Отчет Aigents для Google (beta) - Election Tracker" and "Report for Google+ (beta) - Election Tracker".

Темы	Число публикаций
bot, email, get, google, networks, personal, report	28
intelligence	9
facebook, report	7
today	4

Темы	Число друзей	Друзья
bg, knowledge	2	Alex Shkotin, carey g. butler
blockchain	1	Mark Watson

А поговорить? - бот Aigents в Telegram!

telegram.org/#/im?p=@AigentsBot

Aigents bot

'http://cs630921.vk.me/v630921193/1909a/cjzb90aOPxg.jpg',
'http://cs633427.vk.me/v63...

Anton 8:32:49 PM
What times today, sources <http://www.cbr.ru/> text?

Aigents 8:32:51 PM
There text 'доллар сша руб . 58,8843 руб . ↑ 59,5415'; text 'евро руб . 65,9563 руб . ↑ 67,6868'; text результаты наблюдения в национальной платежной системе за 2014-2016 годы.

Anton 8:32:56 PM
my facebook report

Aigents 8:32:58 PM
[agents_9fb131174... .html](#) 44 KB
Save file

Anton 8:33:06 PM
what your name?

Aigents 8:33:08 PM
My name aigents.

Write a message...

Smiley icon

Avatar icon

Lenta.ru: Главное: Facebook Google+ Google Docs OpenCog NPS Business

Лучшие друзья

Ранг,%	Друг	Мои одобрения	Одобрения	Комментарии
100	Maksim Rabinovich	2	0	2
50	Pierre de Lacaze	1	1	1
50	Mikhail Nikolskiy	1	1	1
50	Anton Lobastov	1	1	1

Последователи

Ранг,%	Друг	Мои одобрения	Одобрения	Комментарии
100	Joseph Anoop George	0	6	0
50	Игорь Школьный	0	3	0
33	Mustafa Qamaruddin	0	2	0
33	Denis Odinokov	0	2	0
33	Lyudmila Kolonina	0	2	0
33	Gleb Protoporov	0	2	0
33	Serge Gluschnev	0	2	0
33	Ольга Полунина	0	2	0
17	Дмитрий Бондарев	0	1	0
17	Виктор Голиков	0	1	0
17	Alexey Vesnin	0	0	1

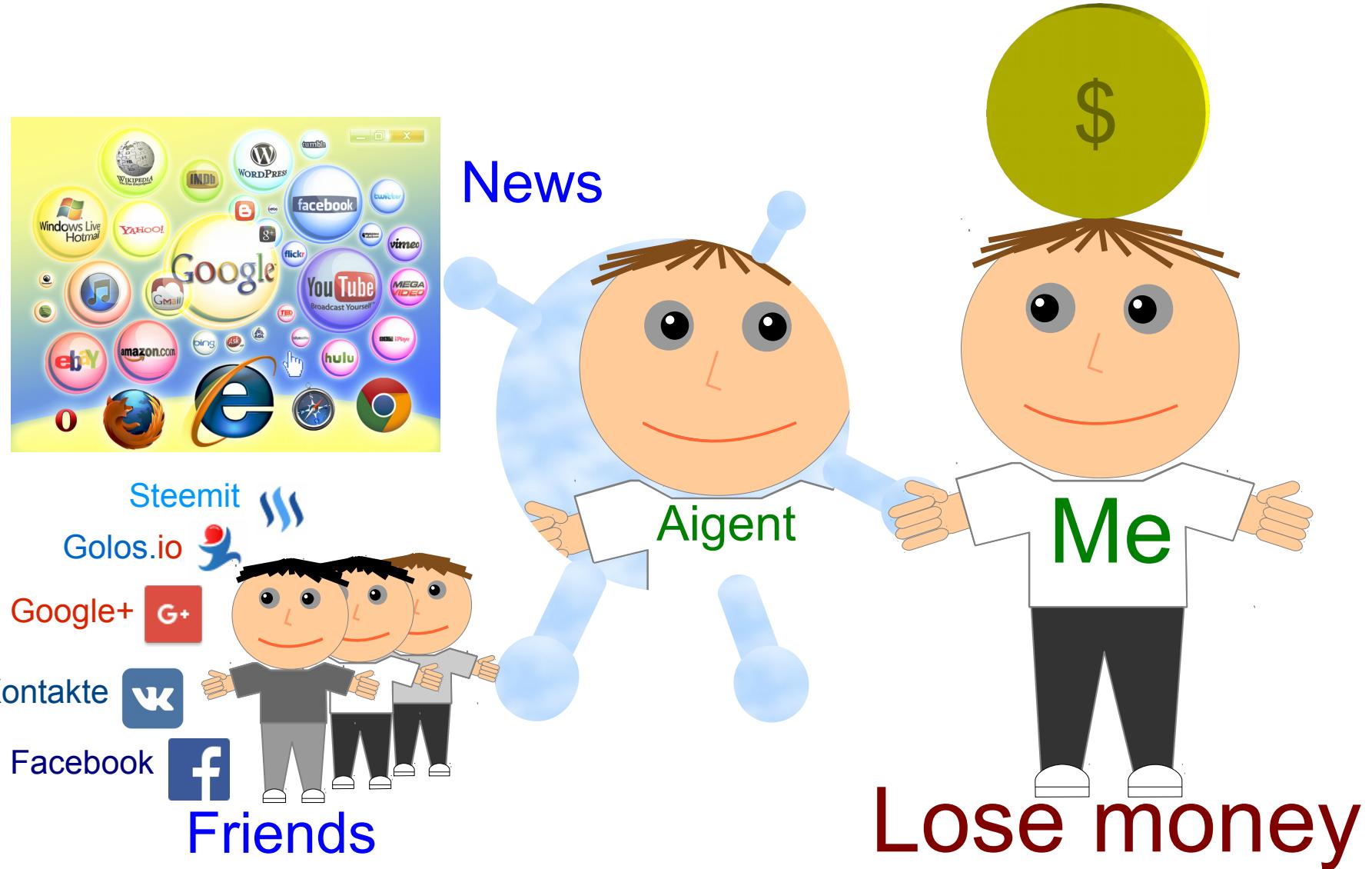
Авторитеты

Ранг,%	Друг	Мои одобрения	Одобрения	Комментарии
100	Maksim Rabinovich	2	0	2
50	Pierre de Lacaze	1	1	1
50	Mikhail Nikolskiy	1	1	1
50	Anton Lobastov	1	1	1

Мои слова за периоды

Период	Карма,%	Одобрения	Комментарии	Слова
2017-06	100	31	17	fairness social network paper b... edwards fighting behalf pollution trees robot языком speaking friend let represented шабло... layered babak very cross-societal measured jhannsdottir called клиентами held release cons...

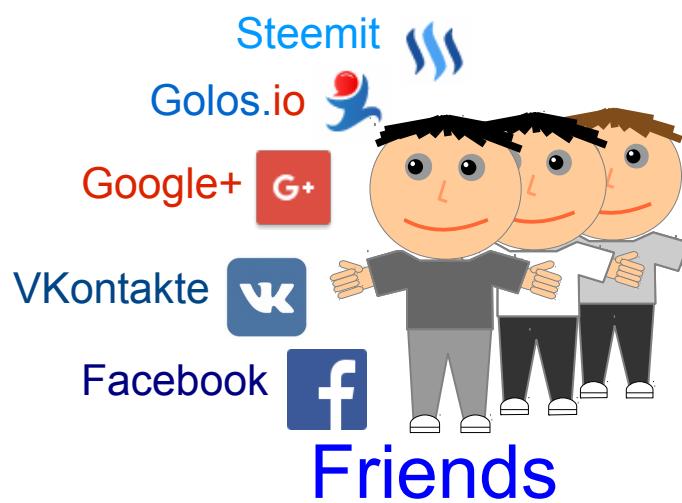
Who is paying? The User?



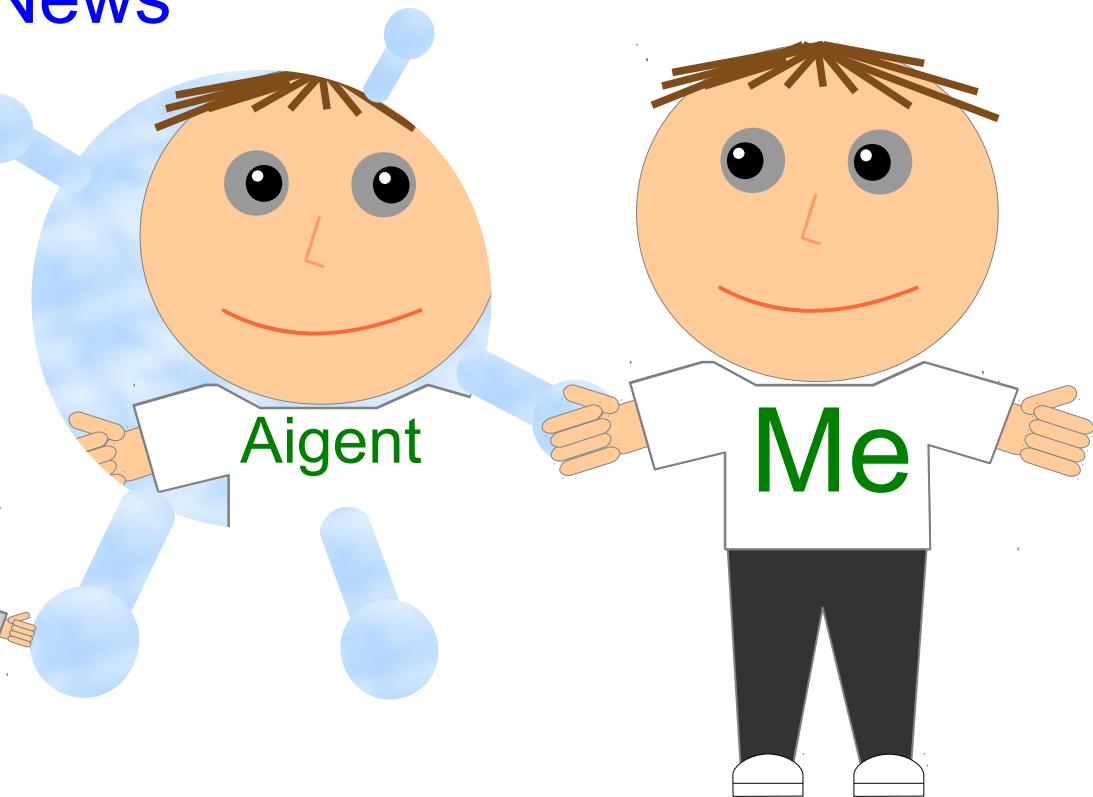
Who is paying? The Business?



Lose money

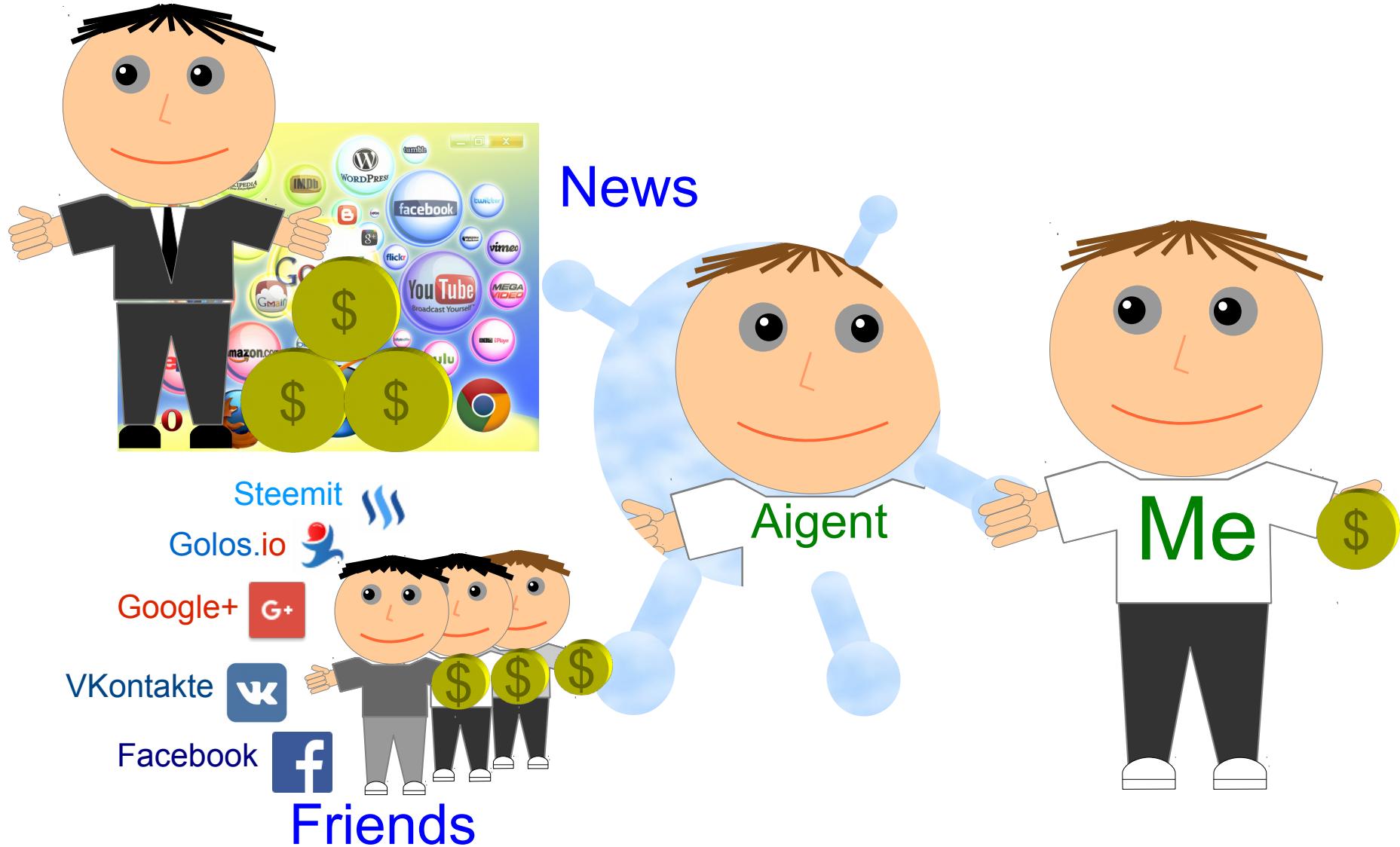


News



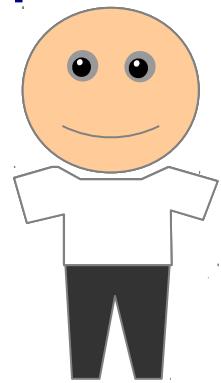
Lose privacy

Who is paying? Everyone, a bit and for purpose!



Aigents Ecosystem

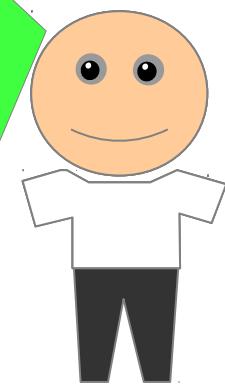
Information
producer



Production of
content

Resources

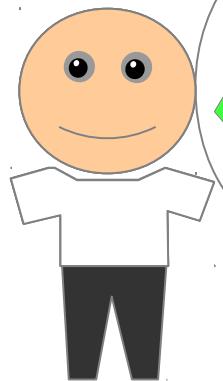
Information
consumer



Consumption of
content

Resources

Personal
Intelligent
Agent



Consumption of
offers

Attention



Production of
offers

Resources

“Real world”
consumer

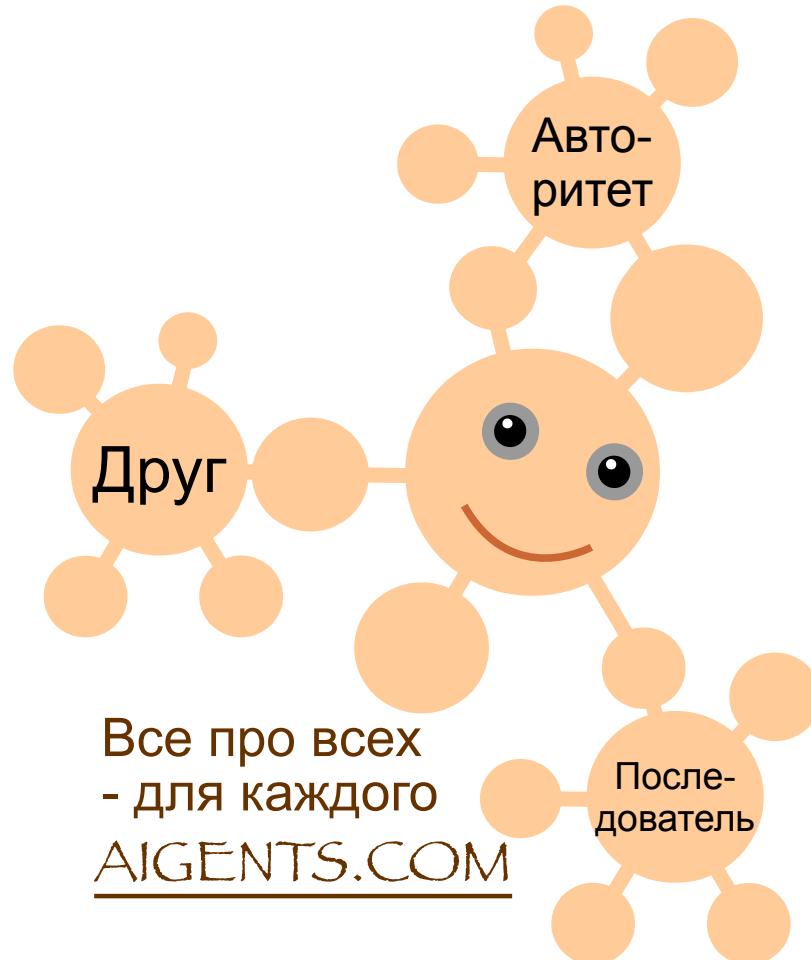
Goods

Resources

“Real world”
producer

Спасибо за внимание!

Как с нами связаться:



E-mail: akolonin@aigents.com

Сайт: <https://aigents.com>

ВКонтакте: <https://vk.com/aigents>

Голос: <https://golos.blog/@aigents>

Steemit: <https://steemit.com/@aigents>

Youtube: <https://www.youtube.com/aigents>

Facebook: <https://www.facebook.com/aigents>

Medium: [@aigents](https://medium.com/@aigents)

Telegram Messenger: [@AigentsBot](https://t.me/AigentsBot)

Последнее демо:
<https://www.youtube.com/watch?v=xmGxt1e4JnA>