Targeted pro-active information search with adaptive intelligent Internet agents

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Find and Share
Your self   with Peer

AIGENTS.COM

Aigents : What is the problem to solve?

That is important in business and everyday life!!!

People now are not capable to handle overflow of information available on the Internet sites and in social networks, they waste a lot of time dealing with that...

There is a question – how to get necessary data timely and precisely, keeping the privacy and ownership in respect the personal information and preferences?

Automatic Intelligent Internet-Agents: Aigents
- Work on personal smartphone, tablet or computer, on corporate server or in the "cloud"
- Learn user preferences implicitly from social network activity and Internet search history or can be told about them explicitly
- Find new information and extract it from the web pages automatically, as soon as it appears online
- Can adjust to user preferences on-the-fly by means of "experiential learning"

So called targeted advertisements is based on personal information and preferences collected implicitly by search engines or social networks - so, the targeting is not precise enough – ads may be irrelevant and annoying!

Information is getting late often or being lost at all :-(

Aigents : Who are we working for?

For analysts and trend watchers
- *Trend detection for specific subject domains and Internet segments*
- *Trend monitoring, hunting for pivot points in story developments*

For marketing specialists at small businesses and start-ups
- *Tracking for announcements and releases on sites of competitors*
- *Monitoring company brand in the Internet media*

For professionals - financial and stock brokers
- *Managing customized news indicators and triggers*
- *Custom configuration of local and global news sources*
- *Real-time "black swan" discovery*

For self-employed individuals, professionals and key workers in smell business enterprises
- Save on information search and extraction
- Get critical news sooner that competitors can
- Obtain information more precisely than with plain internet search and where the latter fails

For politicians and PR-managers of small businesses and start-ups
- *Reputation management*
- *Tracking person or company "good name" in local or global media sources*

For small and one-person businesses relying on bulletin board offers
- *Real-time discovery and capture of target offers on specific electronic bulletin boards*

Aigents : Comparing with alternative solutions

Google Alerts
- *Automatic search given specific queries*
  - **Not timely enough for many cases**
  - **Information is not being extracted**

News Aggregators (Feedly, News 360, Fark)
- *Automatic news feeding given pre-configured channels*
  - **Can't get news feed from arbitrary site**
  - **Information is not being extracted**

Social Networks
- *Targeted content delivery across social media channels*
  - **Personal profile and identity evaluated by network, not user**
  - **Information is not being extracted**

Automatic Intelligent Internet-Agents: <u>Aigents</u>
- Around-the-clock news catch-up
- Extract information from texts
- Configurable for any web sites and subjects of interest
- Configurable and trainable by users
- Can assure strict confidentiality
- Cheap

Personal Assistants (Google Now, Siri, Cortana)
- *Pro-active predictive information search and recommendation*
  - **Work for limited scope of functions and subjects**
  - **Area of expertise can't be extended by user**

Brand analytics systems for Internet media (Brand24, Brandwatch, Brand Analytics)
- *Monitoring of brand performance in entire Internet*
  - **Not timely enough for some cases**
  - **Expensive**

Real-time information extraction from target web resources

Supported platforms working in distributed network

Chat/Bot

Mobile UI

User
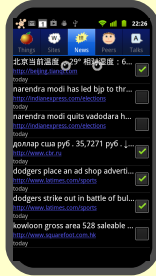
Server
Web UI

Desktop UI
(Windows, Mac, Linux)

AL

AL

AL

AL

AL
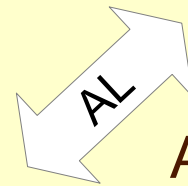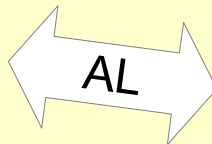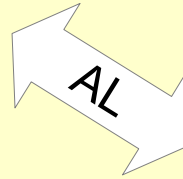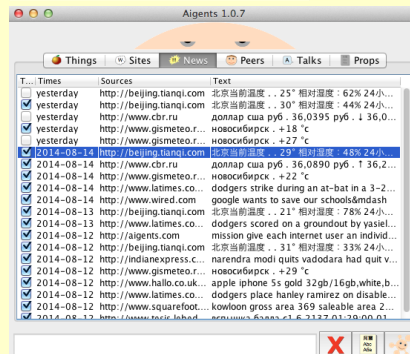
Aigents
kernel

other
agents

AL – Aigent Language

General Intelligence:
Capability to reach complex goals in complex environments using limited resources
(Ben Goertzel)

Intelligent being

Biological Intelligence:
Search for nutrition and reproduction opportunities given multiple physical treats and limited physical resources
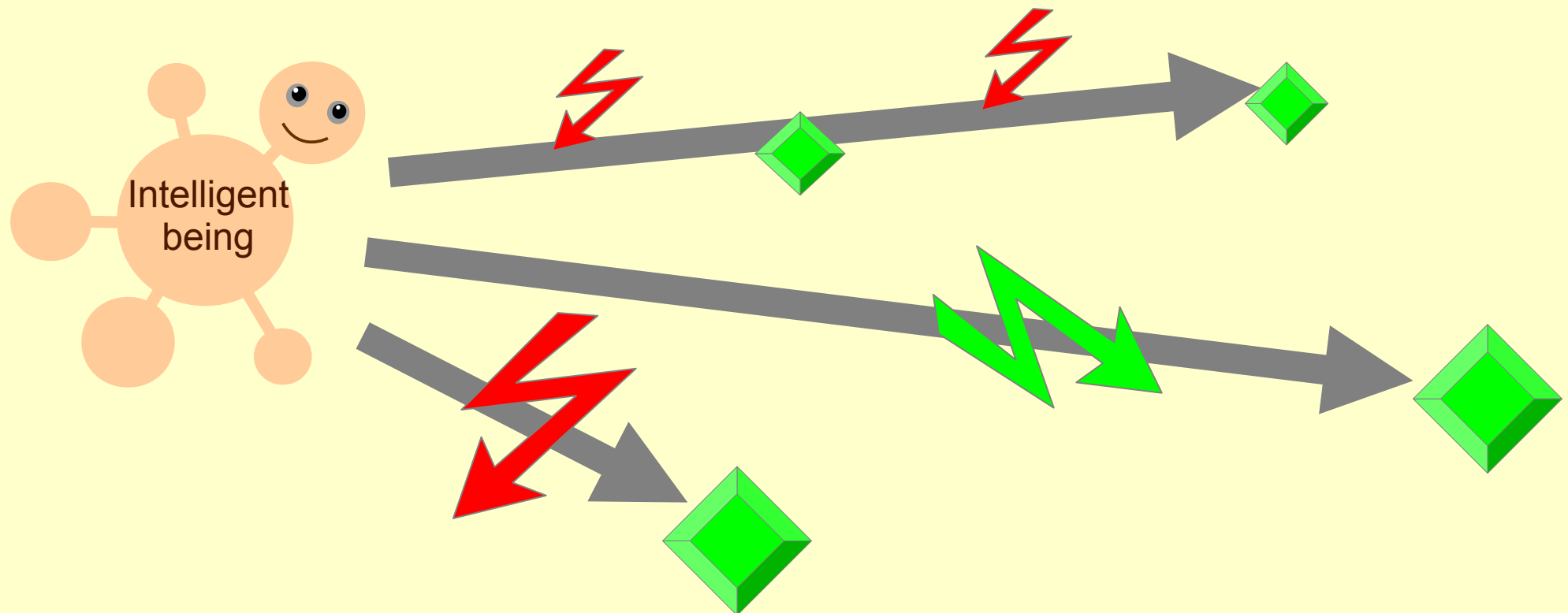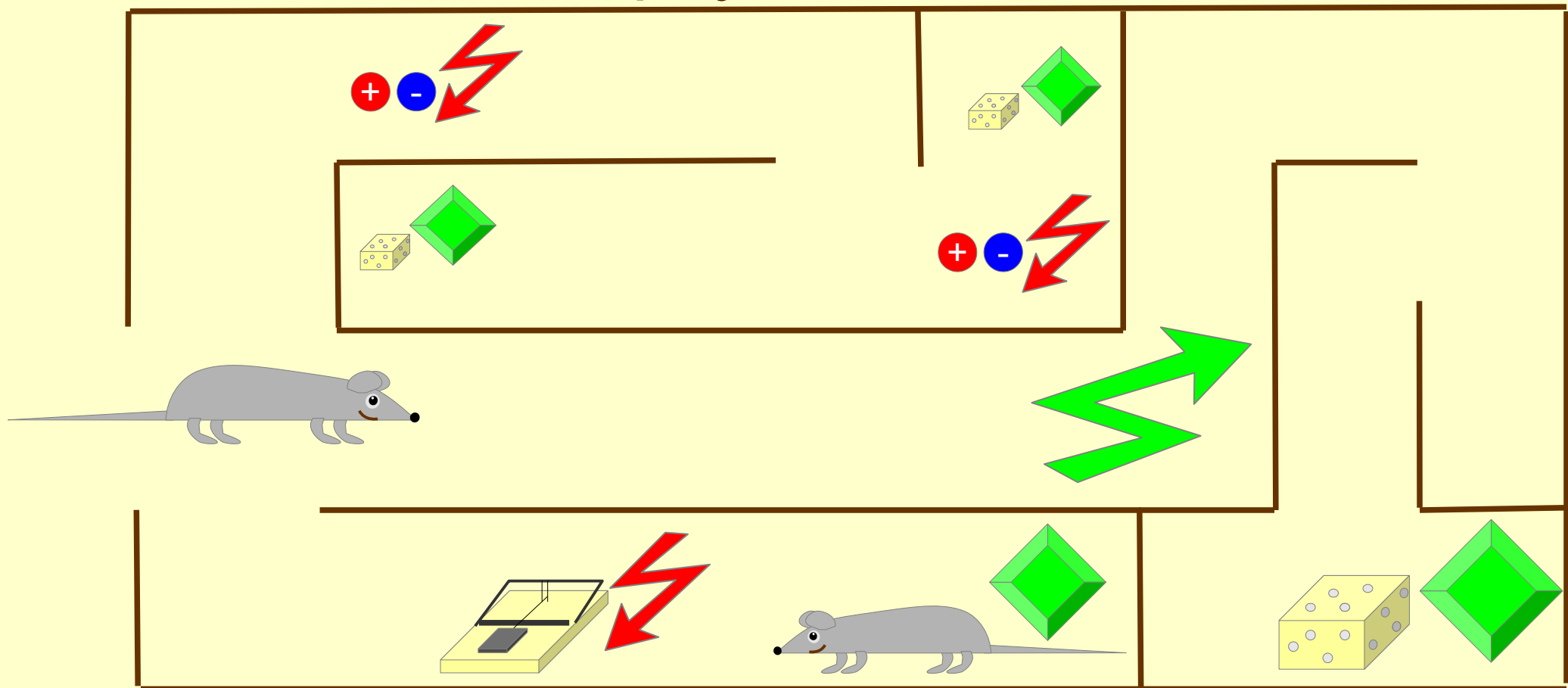
Adaptive experiential learning for targeted search

Internet-agent:
Search for the most valuable information found as quickly as possible given limited computational resources

509 Bandwidth Limit Exceeded

429 Too many requests

404 Not found

北京当前温度 . 29° 相对湿度：6...
http://beijing.tianqi.com
today

narendra modi has led bjp to thr...
http://indianexpress.com/elections
today

narendra modi quits vadodara h...
http://indianexpress.com/elections
today

доллар сша руб . 35,7271 руб . ↓...
http://www.cbr.ru
today

dodgers place an ad shop adverti...
http://www.latimes.com/sports
today

dodgers strike out in battle of bul...
http://www.latimes.com/sports
today

kowloon gross area 528 saleable ...
http://www.squarefoot.com.hk
today

Things   Sites   News   Peers   Talks

Aigents approach: link traversal scenarios detection and replay

Intermediate text context (1)

Starting text context (1)

Intermediate text context (2)

Intermediate text context (3)

Target text context (1)

Starting web pages

Intermediate text context (4)

Intermediate text context (5)

Intermediate text context (6)

Target and found pages

Intermediate text context (7)

Intermediate text context (8)

Starting text context (2)

Web navigation paths as scenarios of hyper-text link traversal depending on textual context surrounding the links

Target text context (2)

Targeted search: one problem – two algorithms

Path Tracker
(scenario player)

Input:
- Starting point (initial context)
- Goal (terminal context)
- "Path set" (set of paths over series of contexts possibly leading to the goal from starting point)

Output:
- Found goal context in success *or failure indicator to pass control to* ***Path Finder***

Goal + Staring Point + Path set
=> Goal | Failure

Path Finder
(scenario detector)

Input:
- Starting point (initial context)
- Goal (terminal context)

Output:
- "Path set" (set of paths over series of contexts leading to the goal from starting point)
- Found goal context
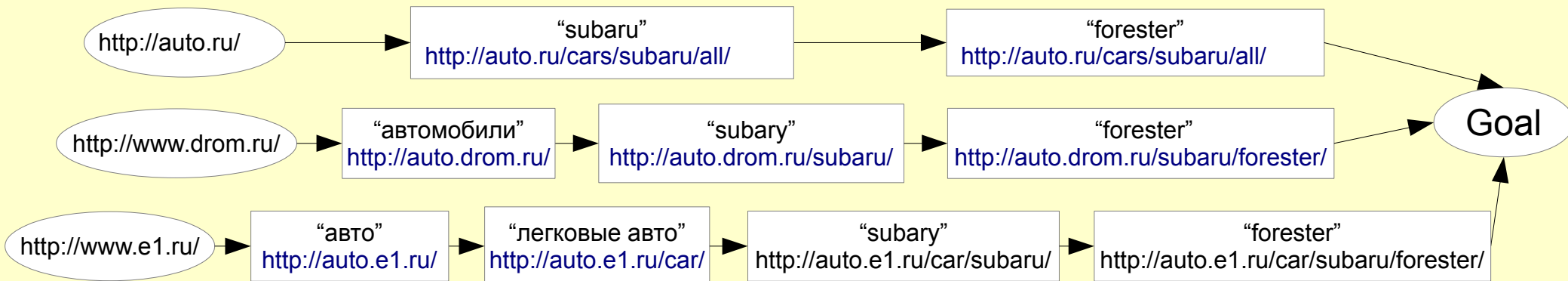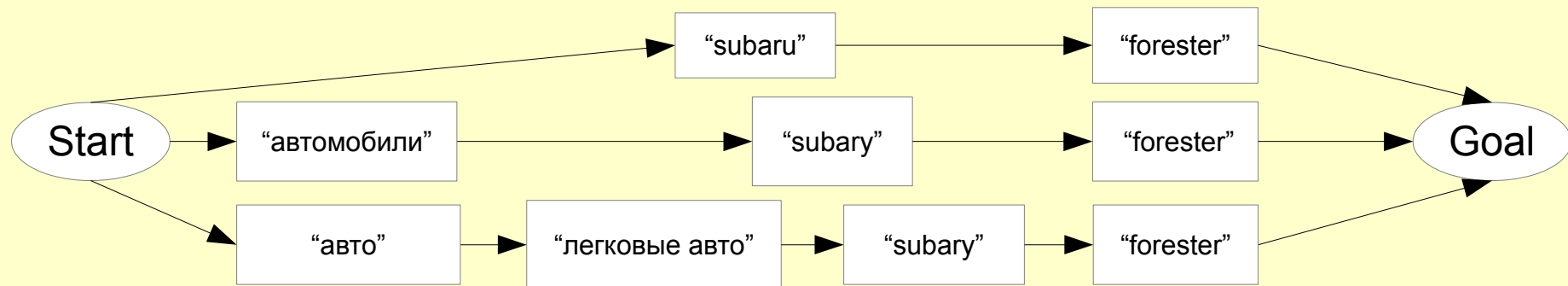
Goal + Staring Point
=> Path set + Goal

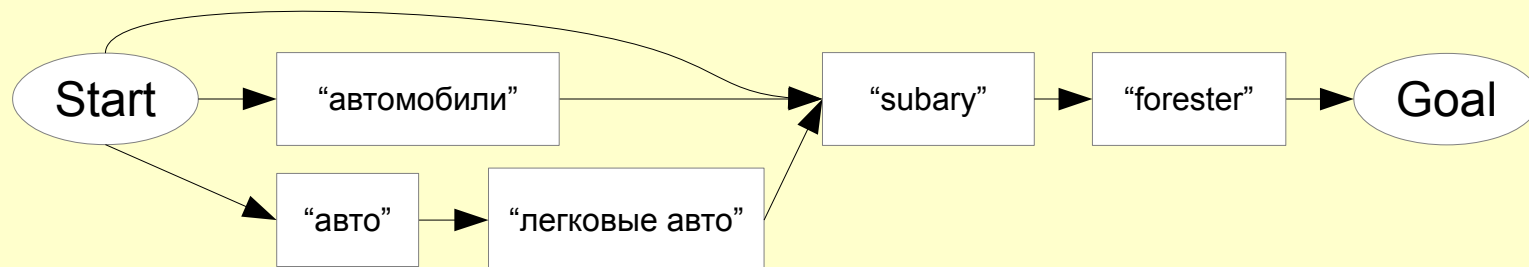# Search for offers of used cars on web sites in Russia

Web traversal paths along links while searching for Subaru "Forester" automobiles

```
http://auto.ru/  ──►  "subaru"                         ──►  "forester"
                      http://auto.ru/cars/subaru/all/         http://auto.ru/cars/subaru/all/  ──►┐
                                                                                                 │
http://www.drom.ru/ ──► "автомобили"  ──► "subary"              ──► "forester"                    ├─► Goal
                        http://auto.drom.ru/  http://auto.drom.ru/subaru/  http://auto.drom.ru/subaru/forester/ ─►│
                                                                                                 │
http://www.e1.ru/ ──► "авто"        ──► "легковые авто"   ──► "subary"                 ──► "forester"
                      http://auto.e1.ru/  http://auto.e1.ru/car/  http://auto.e1.ru/car/subaru/  http://auto.e1.ru/car/subaru/forester/ ─►┘
```

Scenarios of textual context changes for link traversals searching for Subaru "Forester"

```
                        "subaru"  ──────────────►  "forester"  ──┐
                                                                  │
Start ──► "автомобили" ──────────► "subary" ──────► "forester" ──├─► Goal
                                                                  │
      ──► "авто" ──► "легковые авто" ──► "subary" ──► "forester" ─┘
```

Generalized (reduced) scenario of textual context changes for link traversals

```
        ┌──────────────────────────────────┐
Start ──┤──► "автомобили" ──────────────►  "subary" ──► "forester" ──► Goal
        │                                      ▲
        └──► "авто" ──► "легковые авто" ───────┘
```
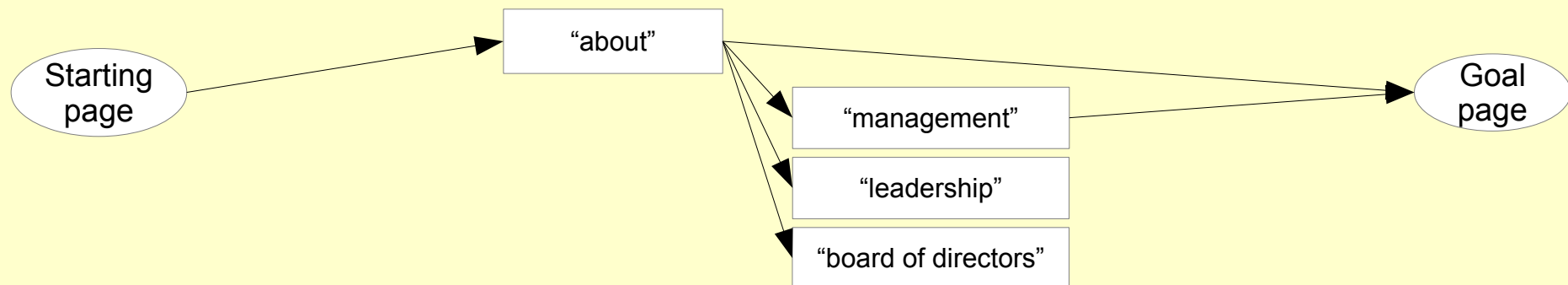
Company management contacts search on web sites
(using top companies in "robotics" area for example)

Exhaustive set of paths (traversal scenarios) from "start page" to "target page":
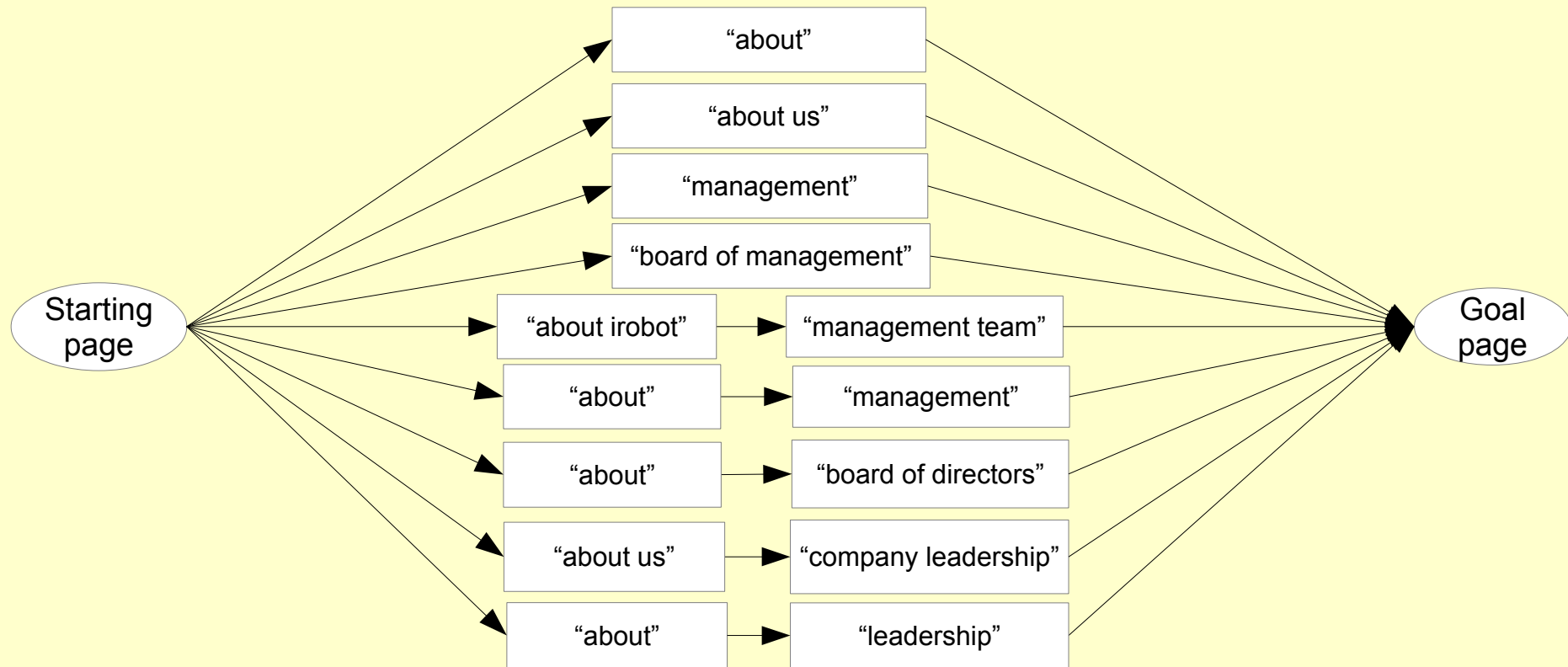
Reduced set of paths (generalized scenario) from "start page" to "target page":

Company management contacts search on web sites

Exhaustive set of paths (traversal scenarios) from "start page" to "target page":

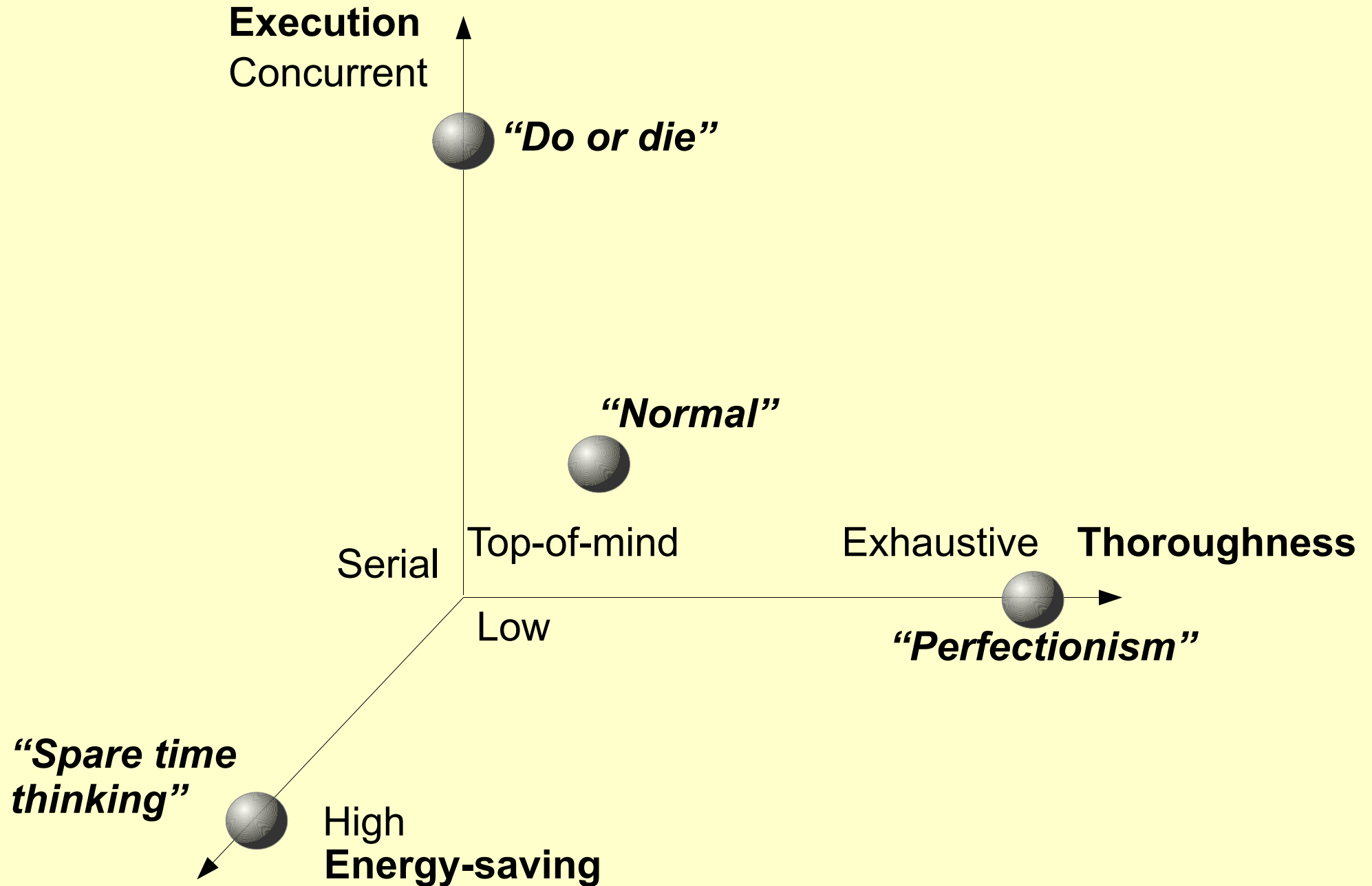## Aigents Language:

```
{  [[about]]
   [[about us]]
   [[management]]
   [[board of management]]
   [[about irobot] [management team]]
   [[about] [management]]
   [[about] [board of directors]]
   [[about us] [company leadership]]
   [[about] [leadership]]
}
```

Reduced set of paths (generalized scenario) from "start page" to "target page":

Aigents Language:

```
[about {management leadership
   [board of directors]}]
```

Optimization of algorithm parameters in "psychological" space

Execution
Concurrent

"Do or die"

"Normal"

Serial   Top-of-mind   Exhaustive   **Thoroughness**

Low

"Perfectionism"

"Spare time thinking"

High
Energy-saving

Thank you for attention!

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