

# Metaphor (and Metonymy)

March 6, 2017

# Next Assignments

- FST regression test suite
- FST
- Chat Bot
- Movie Scene/Narrative
  
- For Chat Bot and Movie Scene/Narrative, move beyond morpho-syntax (how language is formed) to look at how language is used.

# References

- Lakoff and Johnson, *Metaphors we live by*, The University of Chicago Press, 1980
- Zoltán Kövecses, *Metaphor: A Practical Introduction*, 2nd ed. Oxford University Press, 2010
- Lori Levin, Teruko Mitamura, Davida Fromm, Brian MacWhinney, Jaime Carbonell, Weston Feely, Robert Frederking, Anatole Gershman, Carlos Ramirez, “Resources for the detection of conventionalized metaphors in four languages”, Language Resources and Evaluation Conference (LREC), 2014
- Search ACL Anthology for papers by Shutova

# Literal metaphors

- <https://www.youtube.com/watch?v=124cvNuieSA>
- Features a skeleton in the closet and an elephant in the livingroom

# The Lakoff and Johnson theory of metaphors

- Metaphor is a part of ordinary language, not just extraordinary language.
  - Extraordinary: All the world is a stage.
  - Ordinary: My rent went up.
- Our conceptual system is metaphorical too.
  - Based on embodiment

# Metaphor: degrees of conventionality

- Novel:
  - Congress is a circus. Boener and Pelosi are the head clowns.
  - Google Translate is the IBM Selectric of machine translation.
    - (Heard at a conference coffee break)
- Conventional:
  - The weight of poverty
  - Climbing out of poverty
- Frozen:
  - High notes (sounds with short wavelengths)
  - Prices are going up.

# Conceptual Metaphors

- Lakoff and Johnson (1980), Kövecses (2002)
- A SOURCE domain from which imagery is drawn
- A TARGET domain which is described in terms of the source domain
- Example:
  - POVERTY (target) IS A DISEASE (source)

# Linguistic Metaphors

- Conceptual Metaphor:
  - POVERTY IS A DISEASE
- Linguistic Metaphors
  - Cure poverty
  - Symptoms of poverty
  - Blight of poverty
  - Spread of poverty

# Metonymy is not metaphor

- One thing is substituted for another:
  - New York called.
    - A city name substitutes for a person from the city.
  - The ham sandwich wants a coke.
    - A customer's order (ham sandwich) is substituted for the customer.
- But the two things are not being compared:
  - New York is not being compared to a person
  - The customer is not being compared to a ham sandwich

## Examples of metonymy

- Crown. (For the power of a king.)
- The White House. (Referring to the American administration.)
- Dish. (To refer an entire plate of food.)
- The Pentagon. (For the Department of Defense and the offices of the U.S. Armed Forces.)
- Pen. (For the written word.)
- Sword - (For military force.)
- Hollywood. (For US Cinema.)
- Hand. (For help.)

# Conceptual Metaphor: ARGUMENT (target) IS WAR (source)

- Linguistic Metaphors (L&J page 4)
  - Your claims are indefensible.
  - He attacked every weak point in my argument.
  - His criticisms were right on target.
  - I demolished his argument.
  - I've never won an argument with him.
  - Ok. Shoot!
  - If you use that strategy, he'll wipe you out.
  - He shot down all of my arguments.
  - lose ground

- L&J, Page 10
  - A metaphor emphasizes some things (e.g., warlike aspects of arguing) and de-emphasizes other things (e.g., cooperative and generous nature of arguing – doing something together and giving each other time).

# Conceptual metaphor

## TIME (target) IS MONEY (source)

- Linguistic metaphors
  - have time
  - spend time
  - cost me an hour
  - invest time in something
  - budget your time
  - borrowed time
  - lose time

- L&J pages 8-9
- How we act like TIME IS MONEY:
  - Pay by the time period (hour, week, year)
  - Serving time for a debt to society
  - Other things that you pay for by units of time – phone time, hotel rooms, etc.
- Entailment
  - Time is money, time is a limited resource, time is a valuable commodity
- The mapping of TIME to MONEY is not total: you can't get your time back after you spend it.

# Structural Metaphors (L&J, Koveces)

AN ORGANIZATION IS A BODY

Parts of the organization correspond to parts of the body.

Head

Arms

Mouth

Eyes

Ears

(But not every part of the body is represented: kidneys, toe nails, nose hairs, knee caps, etc.)

<http://grammar.about.com/od/mo/g/Oriental-Metaphor.htm>

based on Koveces

- MORE IS UP; LESS IS DOWN: Speak *up*, please. Keep your voice *down*, please.  
HEALTHY IS UP; SICK IS DOWN: Lazarus *rose* from the dead. He *fell* ill.  
CONSCIOUS IS UP; UNCONSCIOUS IS DOWN: Wake *up*. He *sank* into a coma.  
CONTROL IS UP; LACK OF CONTROL IS DOWN: I'm *on top* of the situation. He is *under* my control.  
HAPPY IS UP; SAD IS DOWN: I'm feeling *up* today. He's really *low* these days.  
VIRTUE IS UP; LACK OF VIRTUE IS DOWN: She's an *upstanding* citizen. That was a *low-down* thing to do.  
RATIONAL IS UP; NONRATIONAL IS DOWN: The discussion *fell* to an emotional level. He couldn't *rise above* his emotions.
- This has a physical basis: you are vertical when you are well and horizontal when you are not well. When you put more things in pile, the pile gets higher.

- L&J, Page 17
  - The system is coherent:
    - happy is always up, rising, above, etc. And other good things are also up.
  - But: Page 20: UNKNOWN IS UP is consistent with UNDERSTANDING IS GRASPING

- L&J, Page 22
  - Cultural Values are consistent with metaphor
    - MORE IS UP, GOOD IS UP → more is better, bigger is better
    - FUTURE IS UP, GOOD IS UP → future is better
    - FUTURE IS UP, MORE IS UP → There will be more in the future
- Page 23
  - Things are coherent except when they aren't.
    - MORE IS UP is not consistent with MORE IS GOOD when inflation is rising.

- Page 25-27

- **Ontological metaphors**

- Allow us to refer and quantify

- **Objects and substances**

- We treat things as bounded objects even when they aren't.
    - E.g., “inflation” is an entity. It can go up and down; we can fight it, etc. We can refer to it and quantify it.
    - Responsibility has pressure.
    - You can look for fame and fortune.

- Page 29
  - **Containers**
    - In Kansas
    - In the water (container substance)
    - In the tub (container object)
- Page 30
  - **Visual field containers**
    - In sight
- Page 31
  - **Events, actions, activities, and states as substances, container substances, and container objects**
    - Be in the race, get out of washing windows, put energy into washing windows, in love, out of trouble

# Metaphor: degrees of conventionality

- Not conventional:
  - Congress is a circus. Boener and Pelosi are the head clowns.
- Conventional:
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CCM:  
Conventional  
Conceptual  
Metaphors

# Other work

- General detection of Conceptual Metaphors, not restricted to conventional metaphors
  - Usually involving detection of failure of semantic restrictions
    - My car drinks gasoline (Wilks 1978; Fass 1997)
- Shutova et al. 2013
- Gandy et al. 2013
- From our group:
  - Tsvetkov et al., 2013, 2014
  - MacWhinney and Fromm 2014, Session P36

# The METAL project: automatic detection of conventional metaphors

- English
- Spanish
- Russian
- Farsi
- Poverty
- Taxation
- Wealth and Social Class

# Creating CCM Corpora

## Sketchengine.co.uk

**poverty** (*noun*) enTenTen12 freq = [304221](#) (23.5 per million)

<u>object of</u>	<u>59511</u>	<u>0.2</u>	<u>subject of</u>	<u>29948</u>	<u>0.2</u>	<u>adj subject of</u>	<u>3964</u>	<u>0.2</u>	<u>modifier</u>
alleviate	<a href="#">3544</a>	9.24	plague	<a href="#">139</a>	4.87	rampant	<a href="#">119</a>	5.77	abject
eradicate	<a href="#">2503</a>	9.09	ravage	<a href="#">58</a>	4.82	endemic	<a href="#">50</a>	5.44	extreme
combat	<a href="#">1272</a>	7.59	beset	<a href="#">40</a>	4.66	rife	<a href="#">55</a>	5.4	dire
halve	<a href="#">330</a>	7.0	blight	<a href="#">32</a>	4.62	widespread	<a href="#">167</a>	4.27	rural
grind	<a href="#">861</a>	6.89	afflict	<a href="#">83</a>	4.45	pervasive	<a href="#">33</a>	4.27	endemic
tackle	<a href="#">1527</a>	6.89	persist	<a href="#">95</a>	4.35	prevalent	<a href="#">73</a>	3.67	widespread
perpetuate	<a href="#">311</a>	6.36	exacerbate	<a href="#">62</a>	4.23	first-hand	<a href="#">12</a>	3.13	generational
escape	<a href="#">1106</a>	6.21	oppress	<a href="#">33</a>	3.81	staggering	<a href="#">9</a>	2.42	fuel
reduce	<a href="#">7323</a>	6.13	wrack	<a href="#">17</a>	3.71	dire	<a href="#">10</a>	2.12	concentrated
overcome	<a href="#">1054</a>	6.11	decline	<a href="#">155</a>	3.62	inevitable	<a href="#">23</a>	1.92	absolute
strike	<a href="#">1365</a>	6.01	enslave	<a href="#">23</a>	3.43	evident	<a href="#">38</a>	1.81	hunger
fight	<a href="#">2761</a>	5.97	pimp	<a href="#">12</a>	3.38	synonymous	<a href="#">10</a>	1.66	persistent

We used the Sketchengine grammars for English, Russian, and Spanish. We wrote our own for Farsi.

# Resources for automated detection of CCMs

## English CCM table: 963 CCMs

	A	B	C	D
1	<b>checkable type</b>	<b>arg0</b>	<b>arg1</b>	<b>LM-source</b>
204	ACTION_HAS_OBJECT	tap	rich	0
205	ACTION_HAS_OBJECT	tap	wealthy	0
206	ACTION_HAS_OBJECT	wield	wealth	0
207	ACTION_HAS_SUBJECT	breed	poverty	0
208	ACTION_HAS_SUBJECT	deepen	poverty	0
209	ACTION_HAS_SUBJECT	disappear	poverty	0

Additional columns: conceptual metaphor. E.g., poverty is a container or abyss for “deepen poverty”

# Farsi CCM Table: 991 CCMs

	A	B	C	D
1	<b>checkable type</b>	<b>arg0</b>	<b>arg1</b>	<b>LM-source</b>
2	ENTITY_IS_ENTITY	زندان	فقر	1
3	ENTITY_IS_ENTITY	جهنم	فقر	1
4	ENTITY_IS_ENTITY	قیمت	مالیات	1
5	ENTITY_HAS_MODIFIER	عدالت	مالیات	0
6	ENTITY_HAS_MODIFIER	پرانتر	مالیاتی	0
7	ENTITY_HAS_MODIFIER	قطع	مالیات	0

Spanish: 866

Russian: 428

CCM tables are available through  
META share, MacWhinney and Fromm  
(LREC 2014, Session P36).

# Common CCM's for “poverty” in English, Spanish, Russian, and Farsi

## **English: POVERTY IS A DISEASE**

Can marriage *cure poverty*?

## **Spanish: POVERTY IS A SCHISM**

Tampoco hemos logrado *reducir la brecha* entre ricos y pobres.

We have not been able to *reduce the gap* between the rich and the poor either.

## **Russian: POVERTY IS AN ABYSS**

Каждый пятый житель Крыма находится на *границе нищеты*.

One out of five people in the Crimea is on the *verge of poverty*.

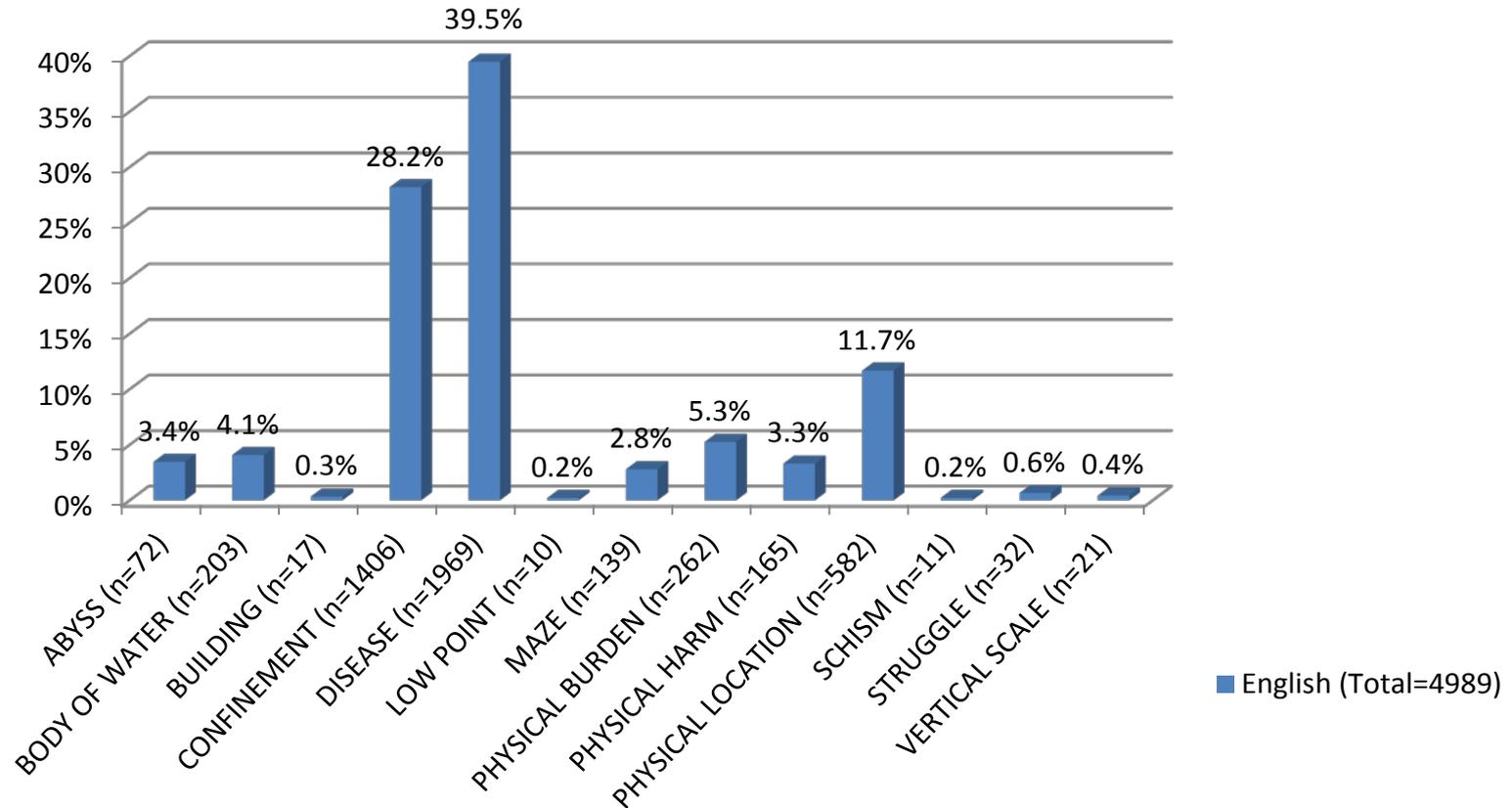
## **Farsi: POVERTY IS A PHYSICAL LOCATION**

و بنا به اعتراف رئیس آمار کشور 10 میلیون ایرانی زیر خط فقر مطلق به سر میبرند!

According to the confession of the head of statistics, 10 million Iranians live under the absolute *poverty line*.

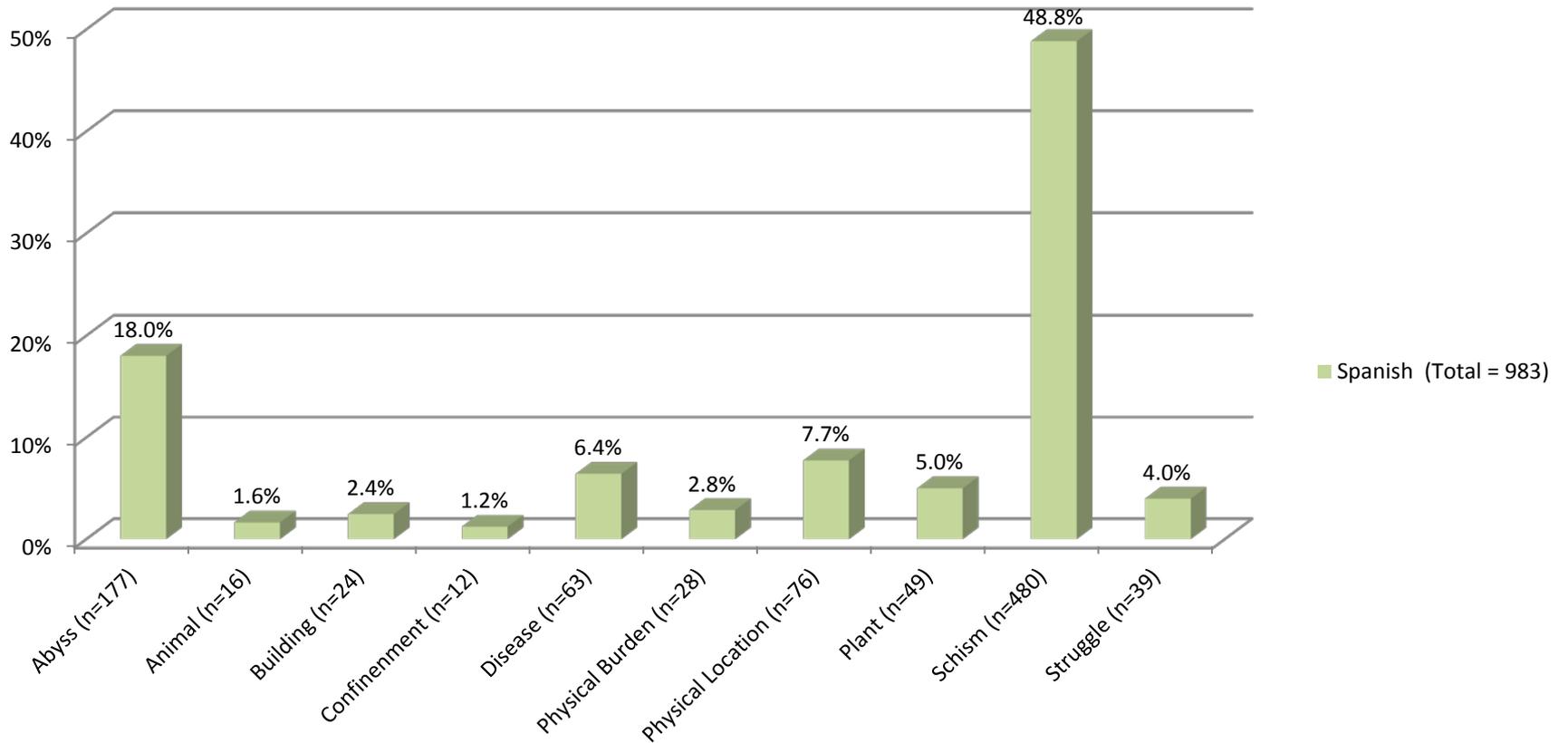
This was done for a project funded by the Intelligence Advanced Research Projects Agency (iARPA) in 2011-2012. These are the findings of the CMU team. The Berkeley team, and others have different findings. Search for papers in ACL Anthology (contains proceedings of most major language technologies conferences) for papers by Shutova.

## English Conceptual Sources for POVERTY (with 10 or More Detections per Source)

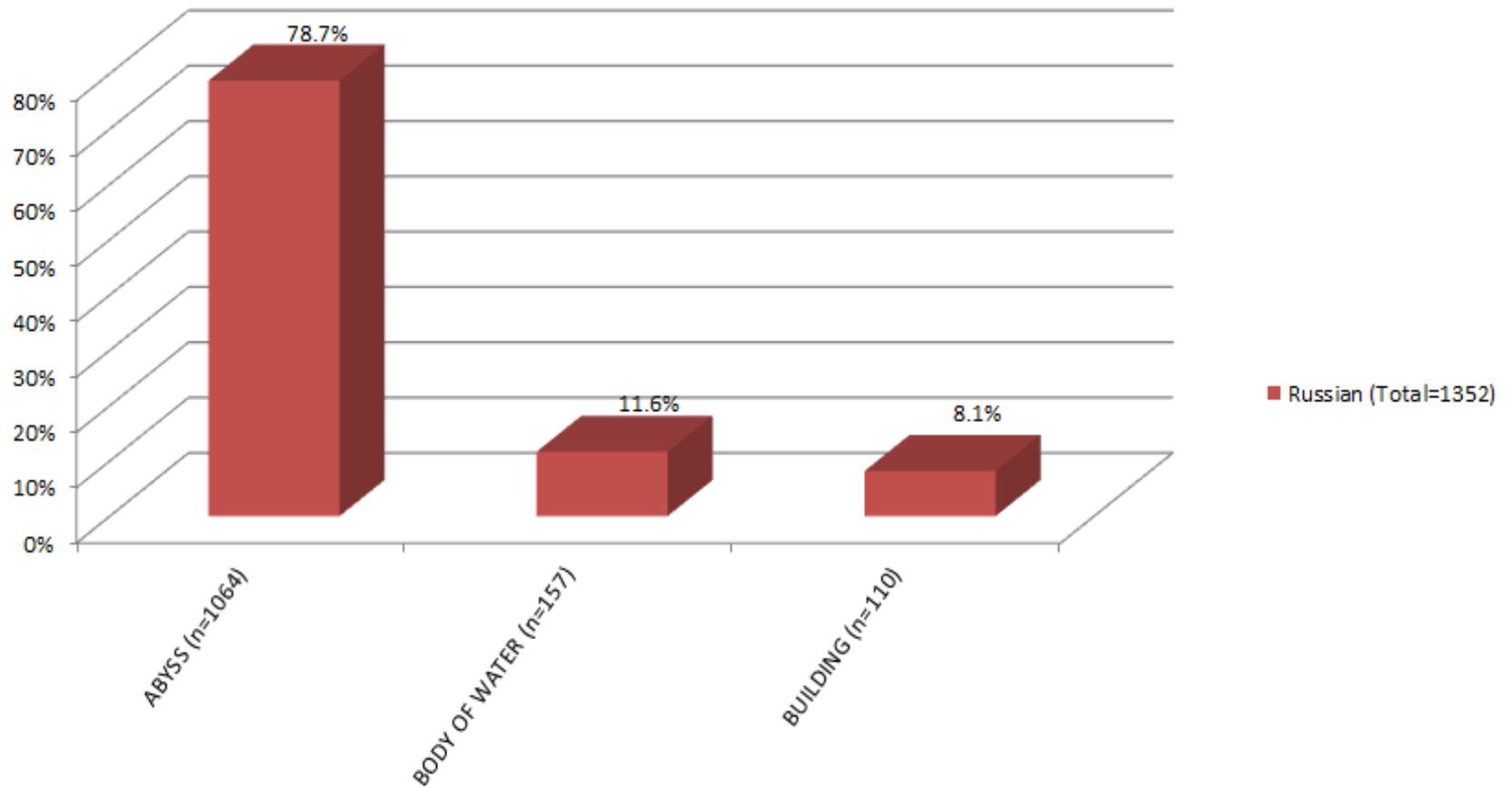


The results on this and the following slides are not definitive because the corpora in the four languages were not comparable. The differences in frequencies of different metaphors could be attributable to differences in the political orientation of the newspapers in the four languages, and might not be true across the whole language.

## Spanish Conceptual Sources for POVERTY (with 10 or More Detections per Source)



## Russian Conceptual Sources for POVERTY (with 10 or More Detections per Source)



## Farsi Conceptual Sources for POVERTY (with 10 or More Detections per Source)

