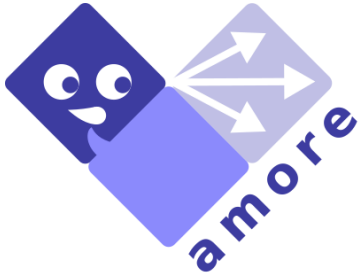
Don’t blame distributional semantics if it can’t do entailment

Matthijs Westera & Gemma Boleda
Universitat Pompeu Fabra



What is an adequate model of *expression meaning*?

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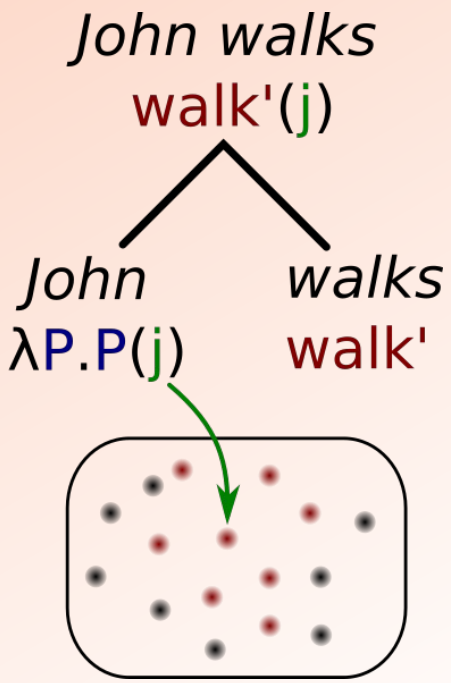

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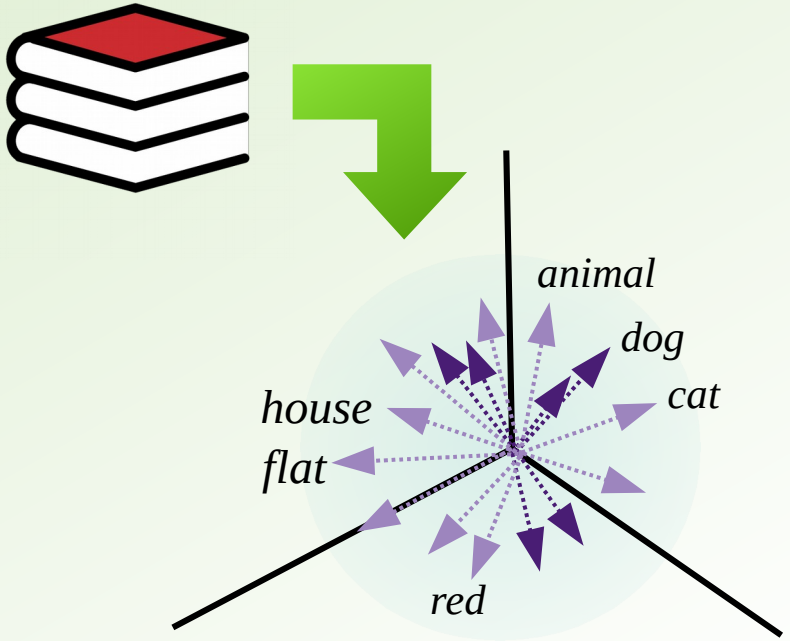

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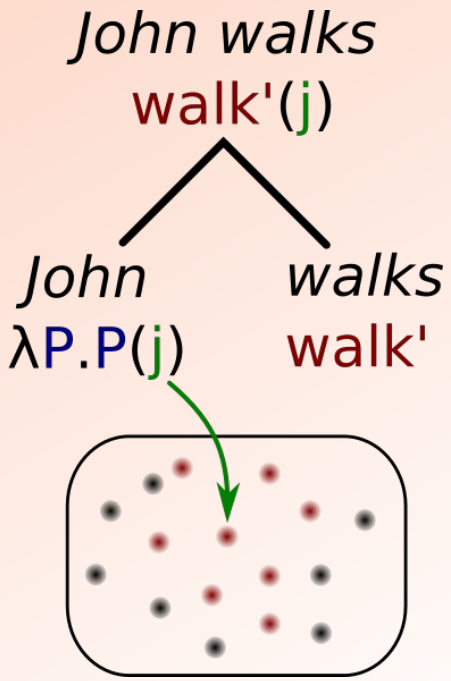

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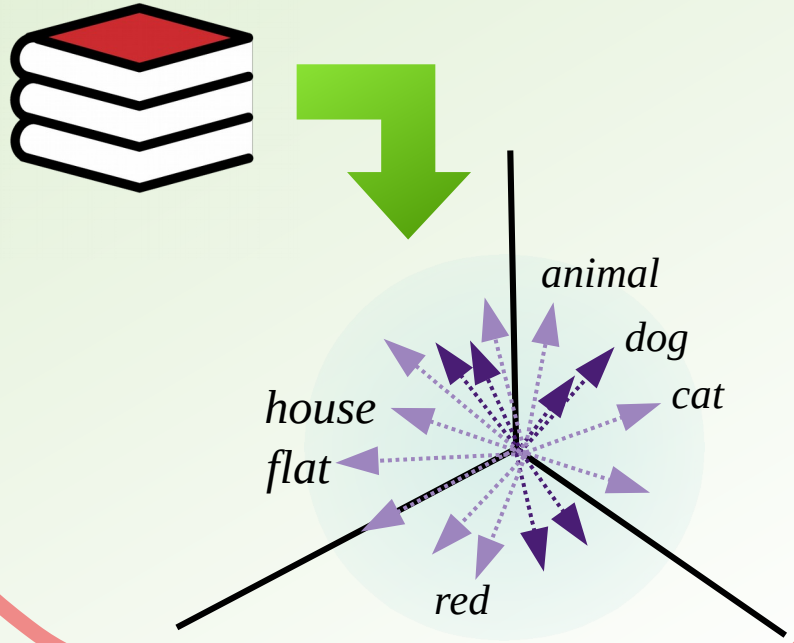

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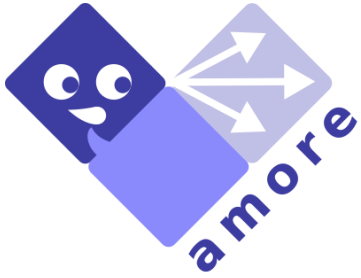

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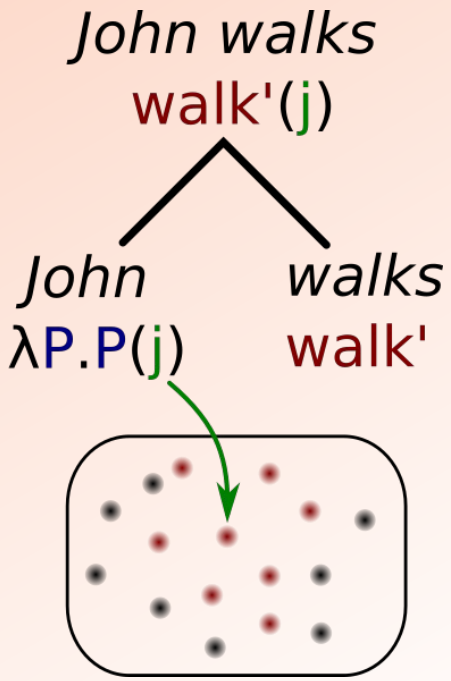

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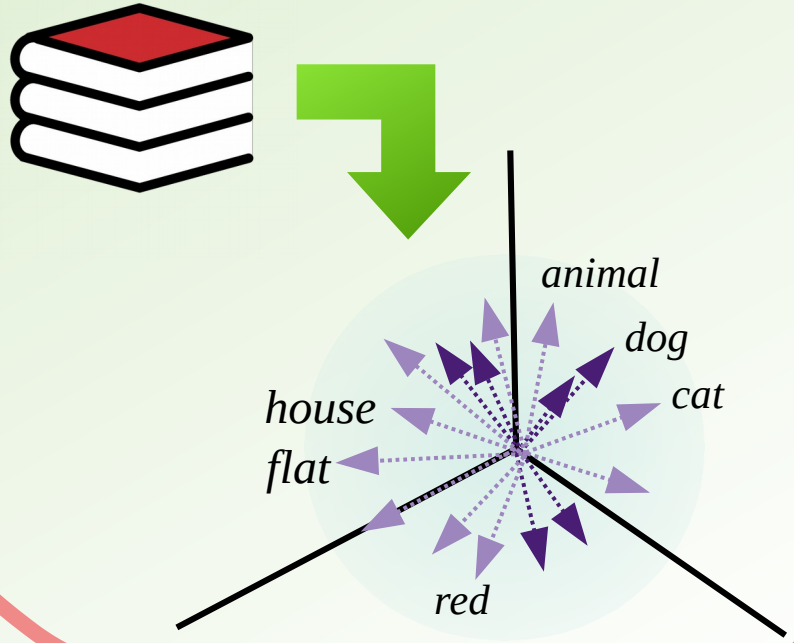

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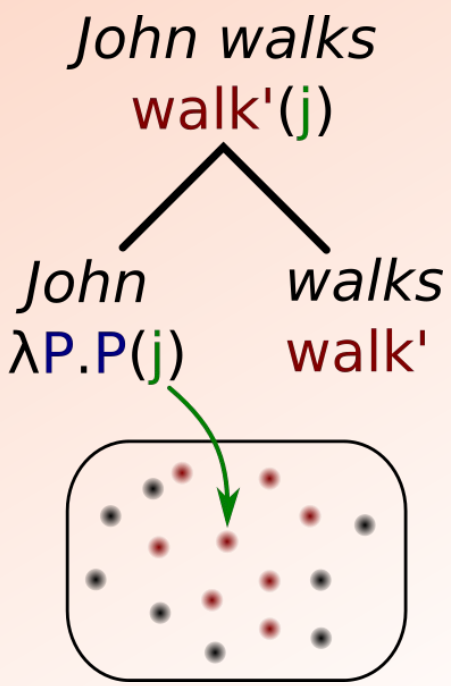

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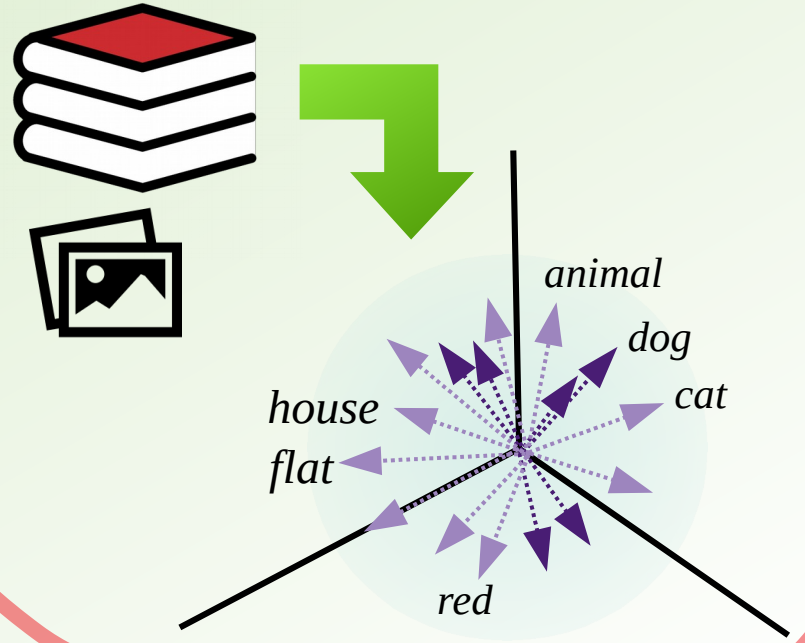

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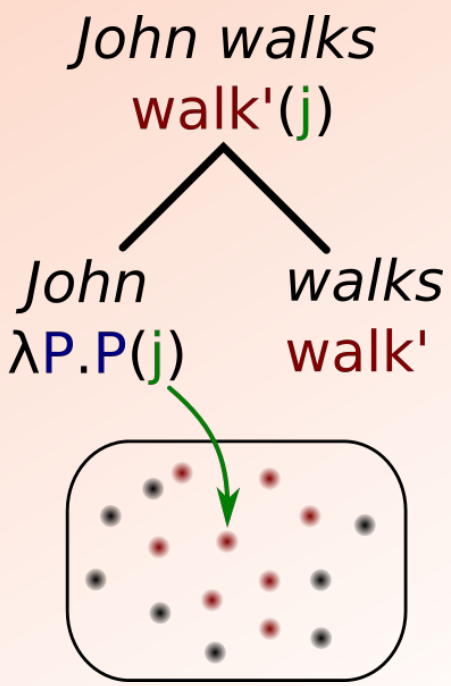

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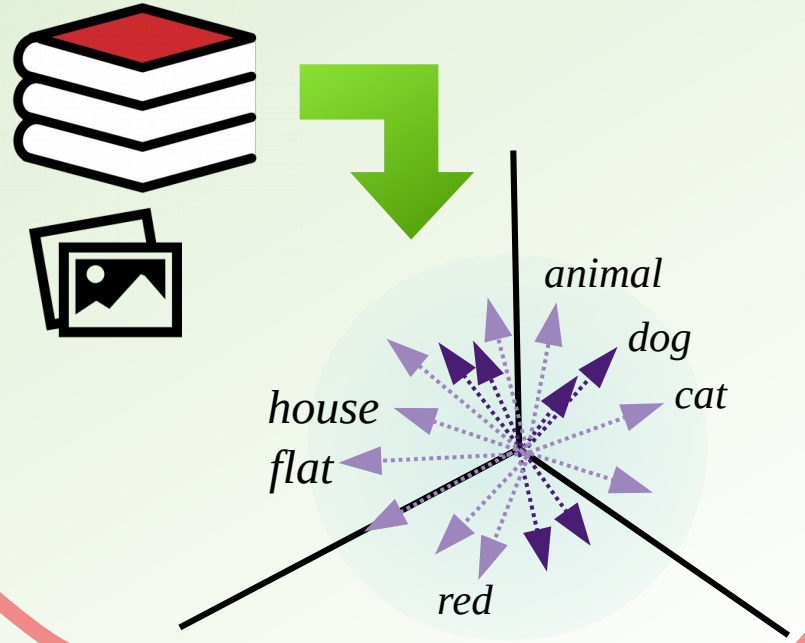

Expression meaning vs. speaker meaning (Grice ‘68)

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"Red"

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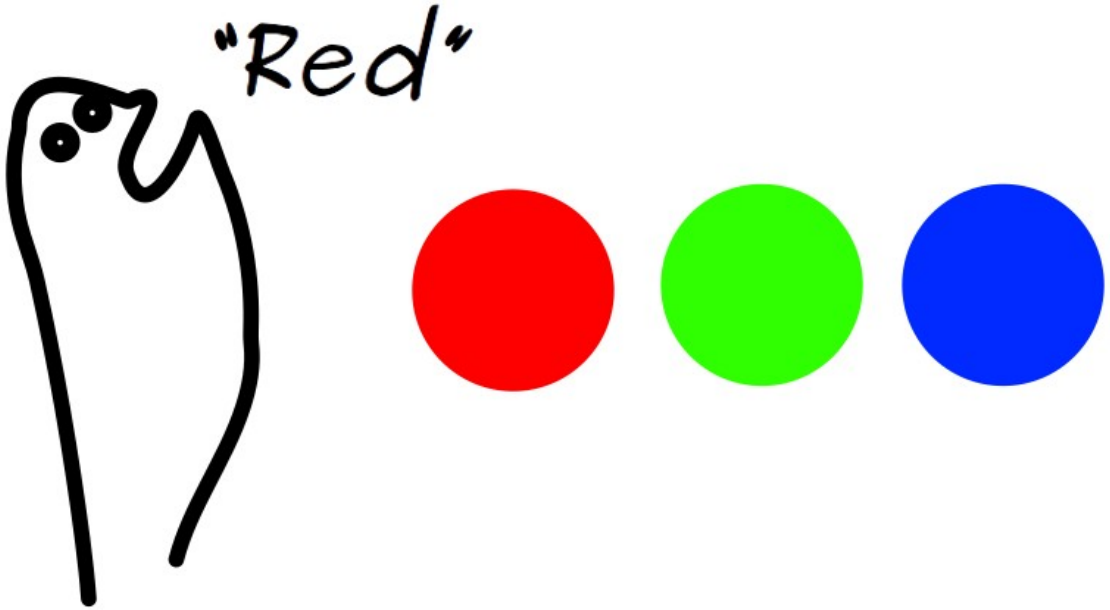

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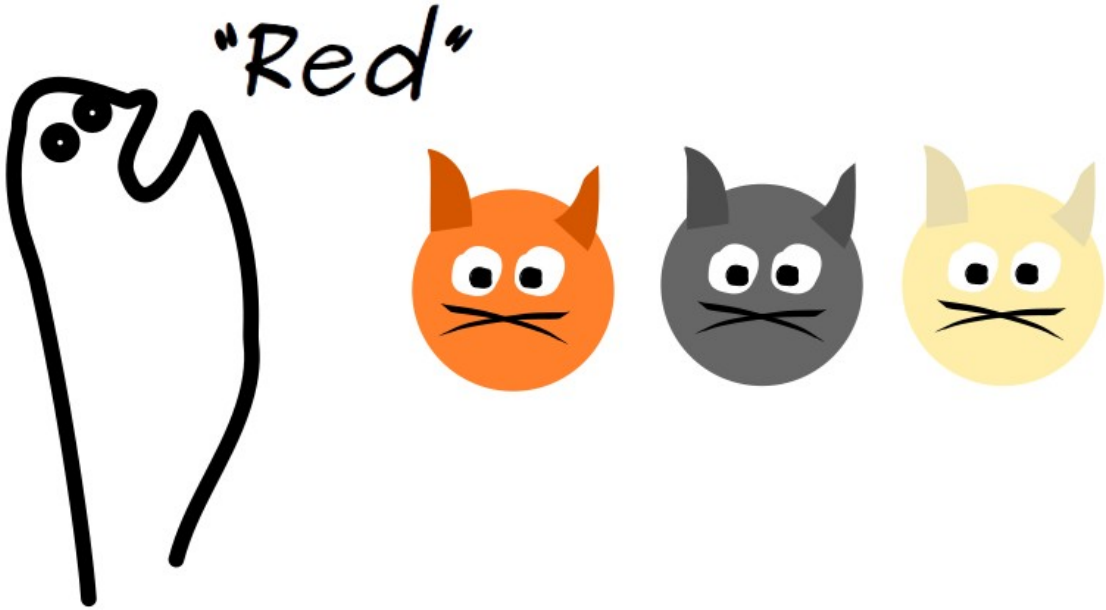

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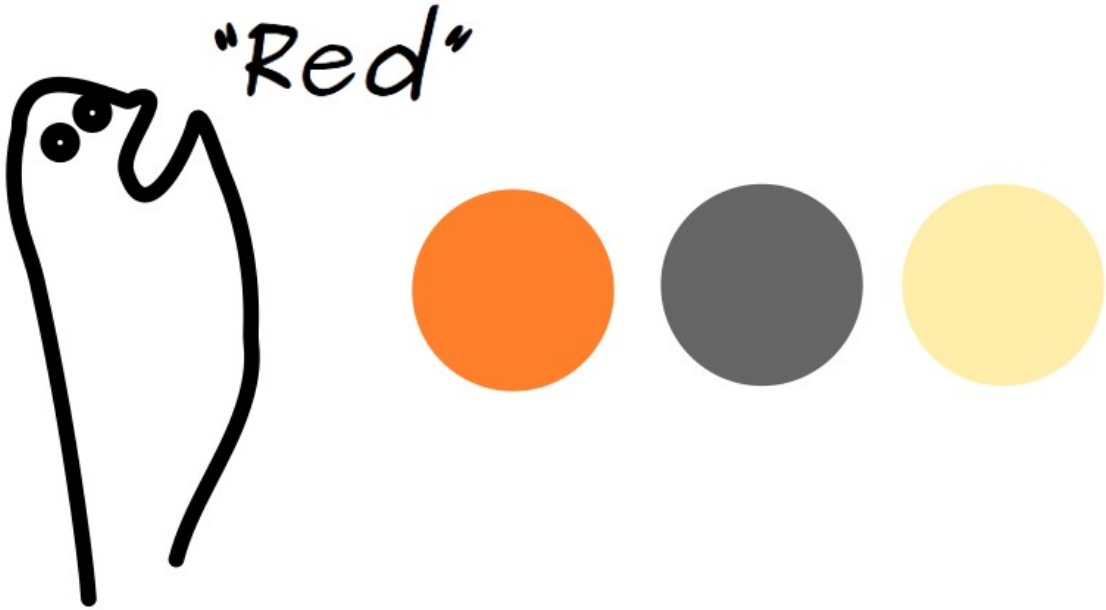

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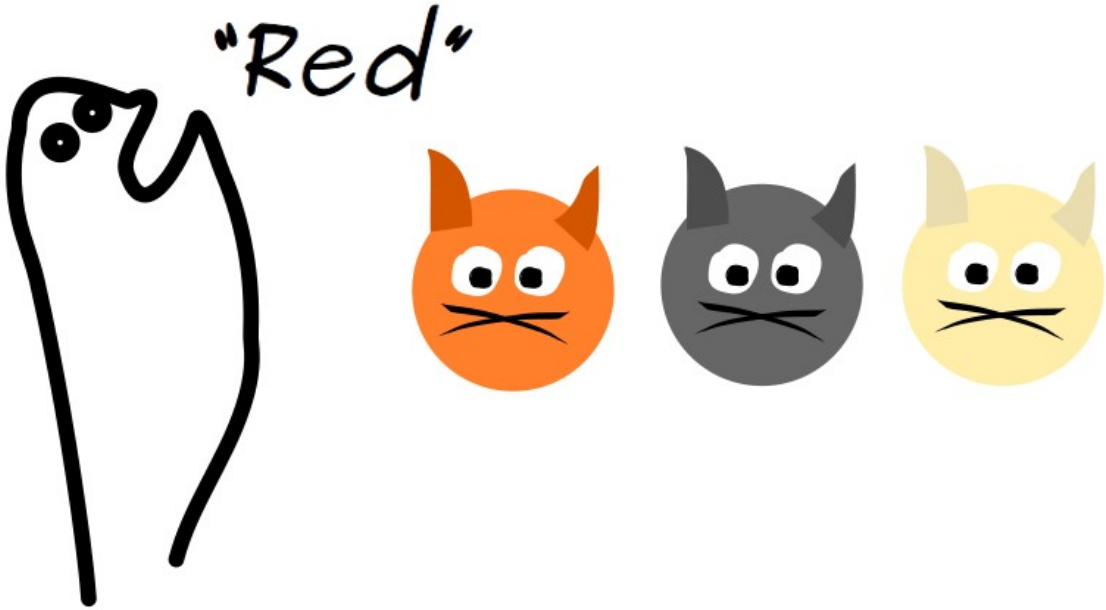

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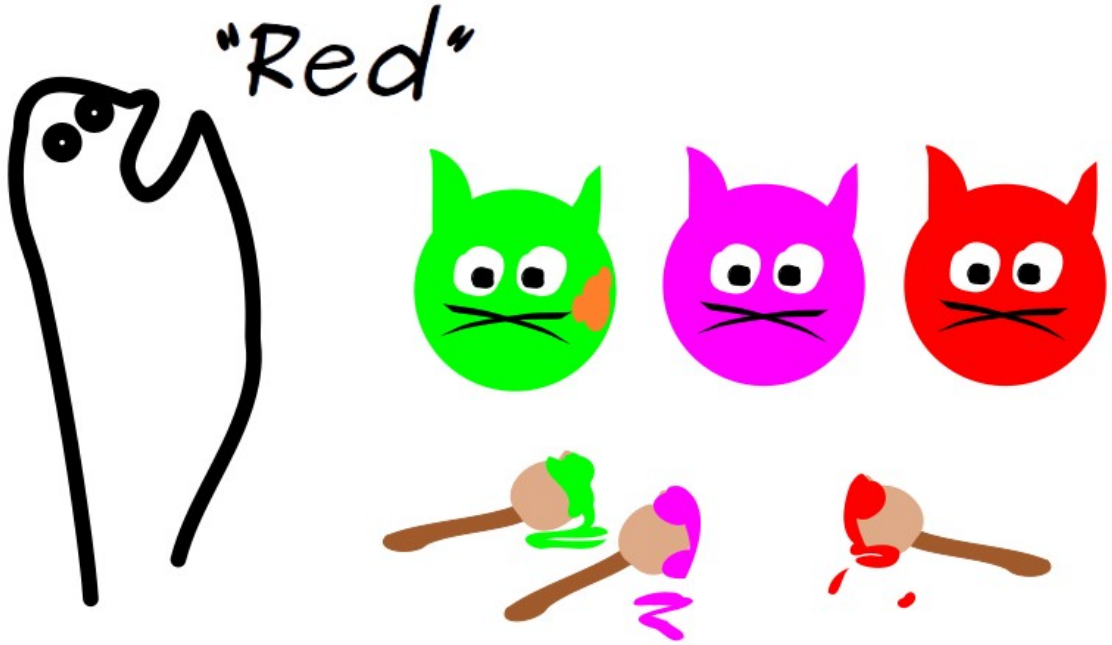

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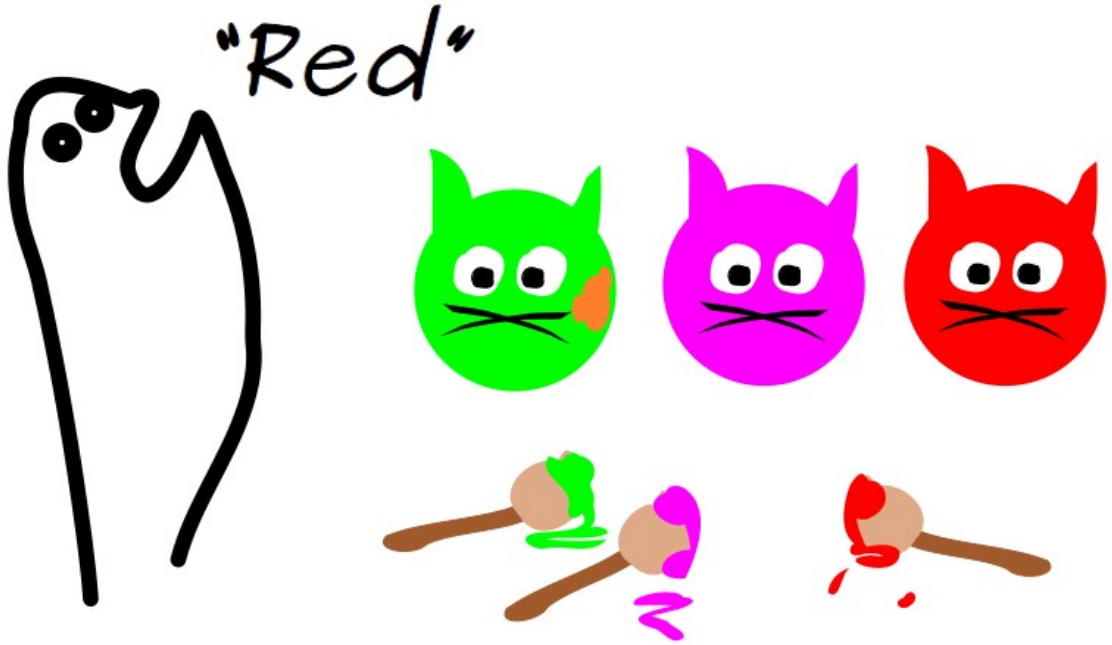

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The speaker’s communicative intention (varies a lot).

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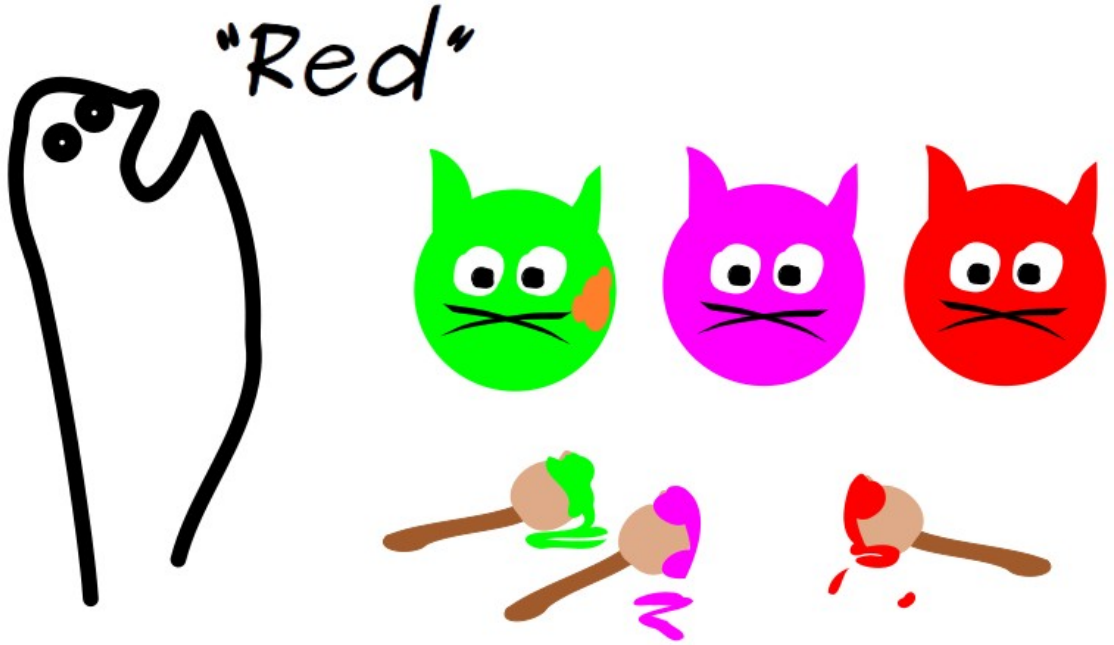

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Some kind of fixed backbone of all uses.

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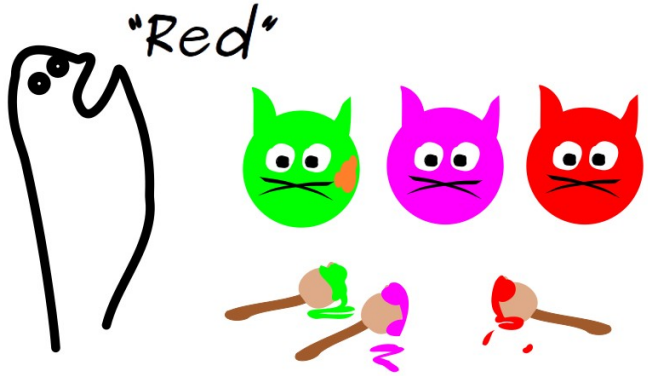

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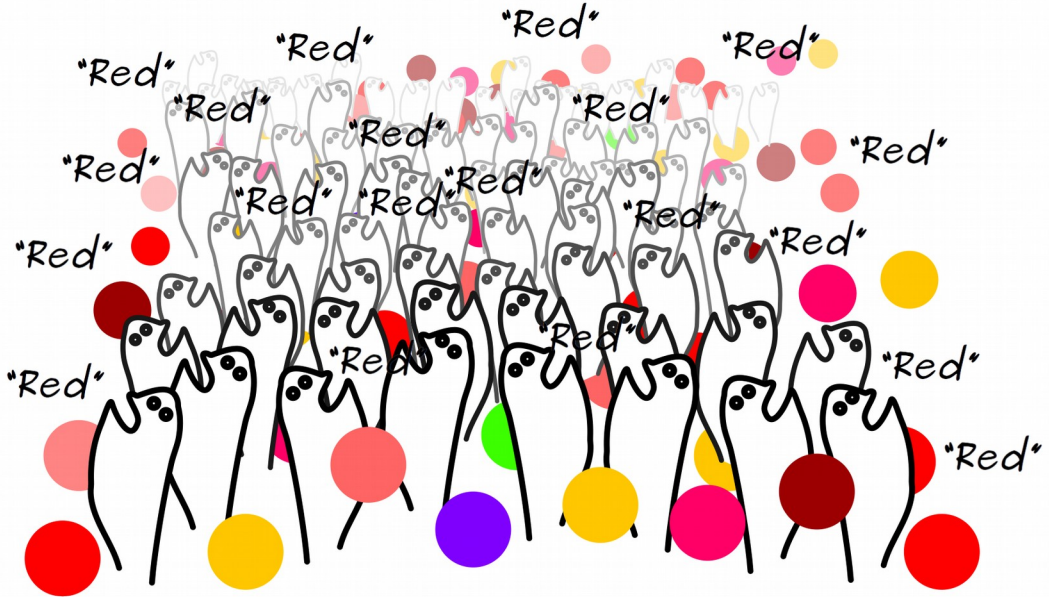

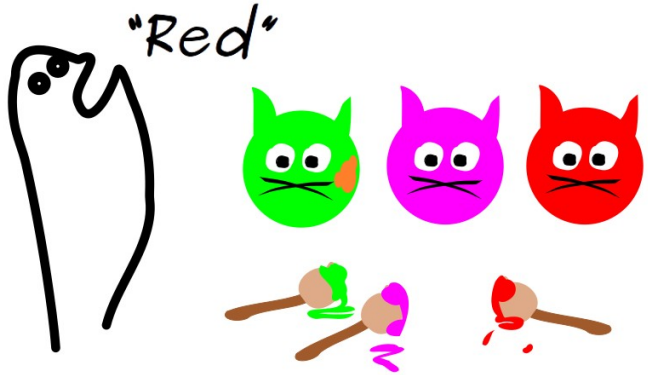

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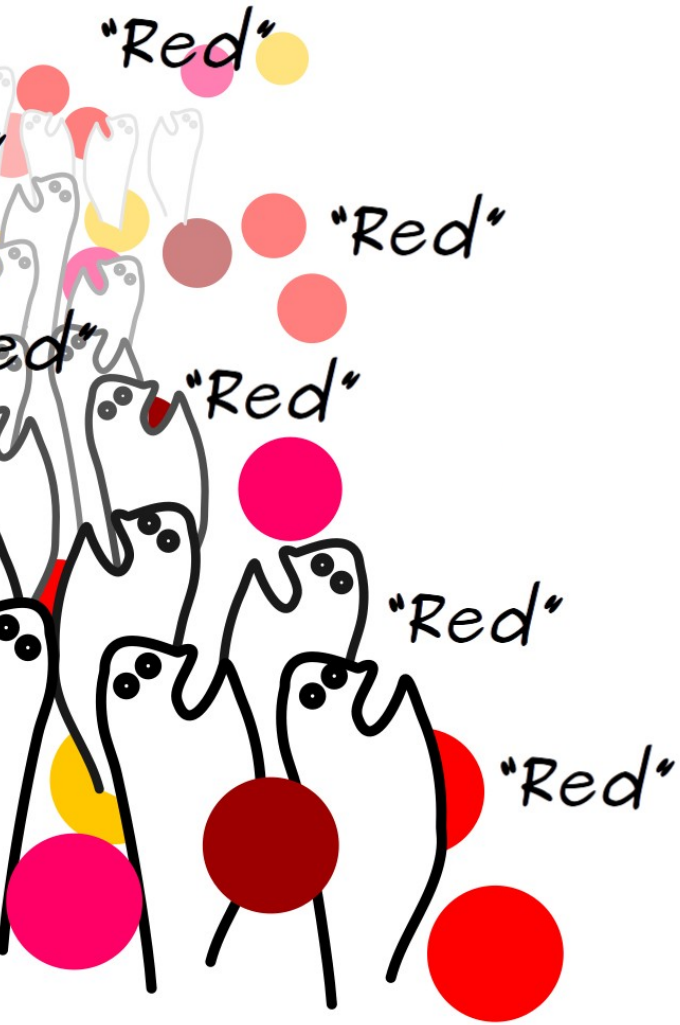

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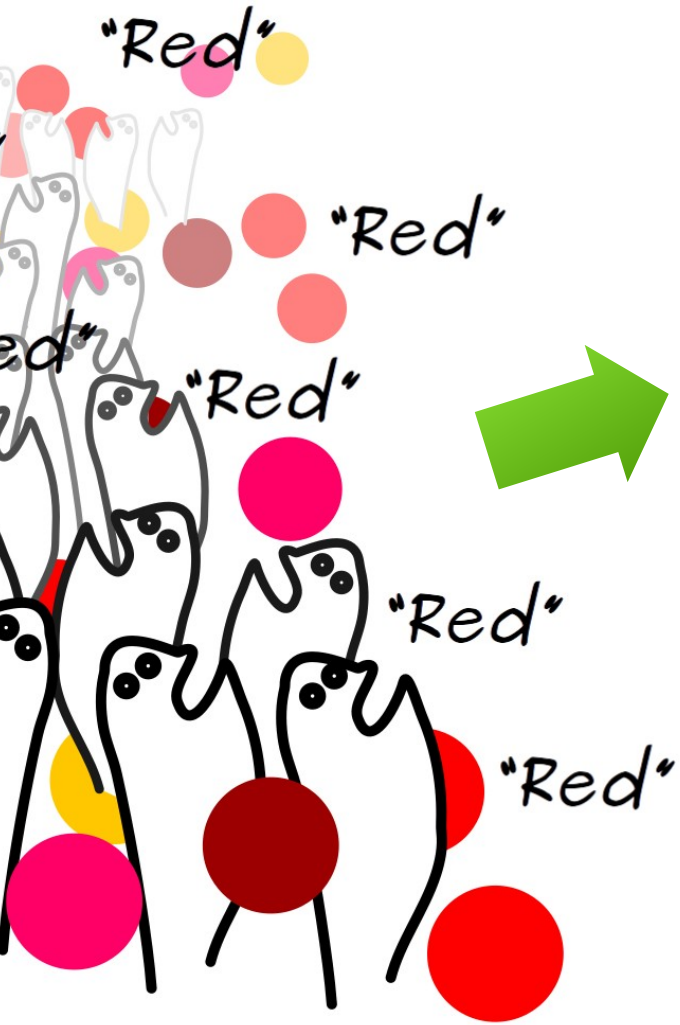

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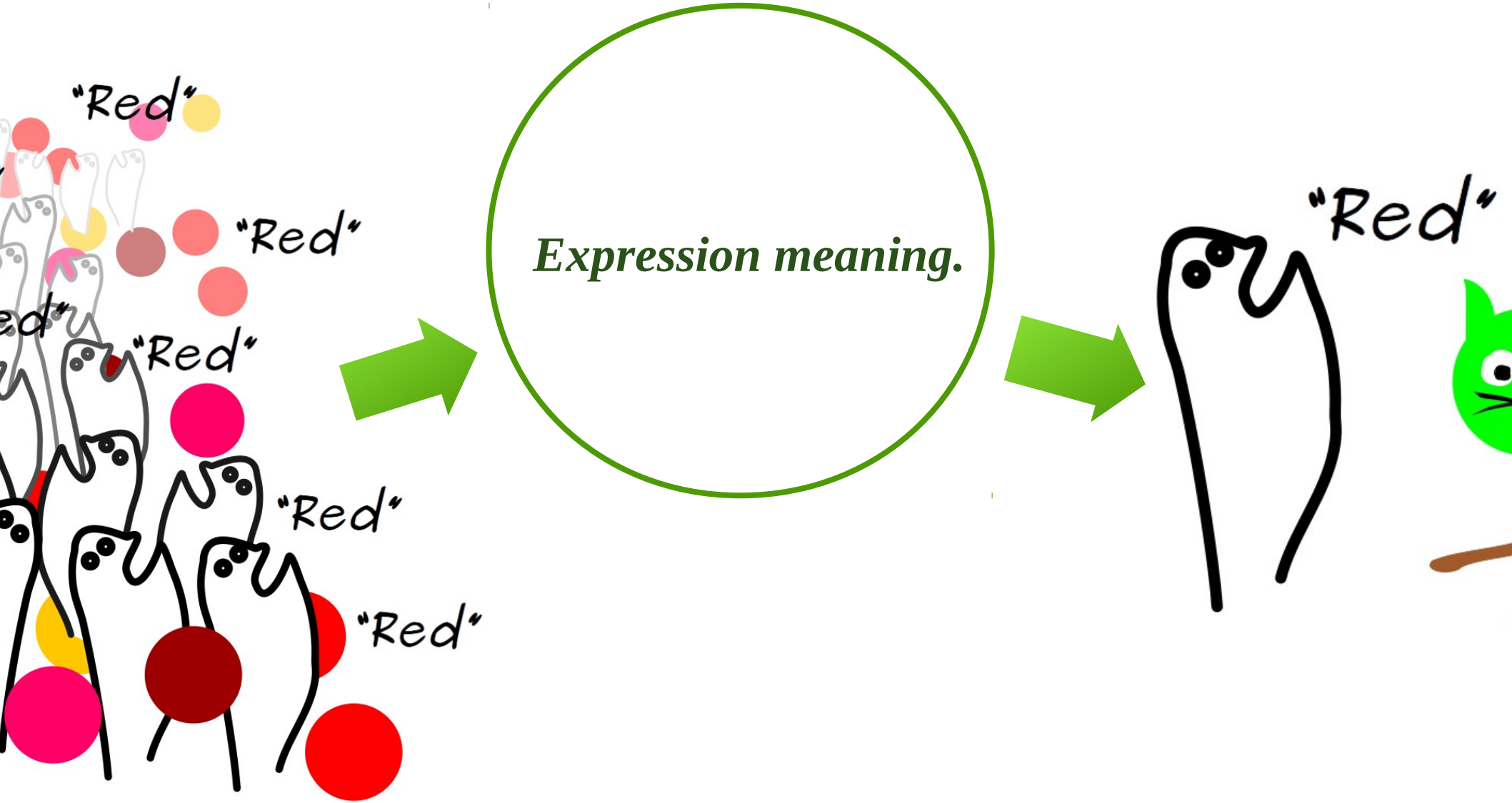

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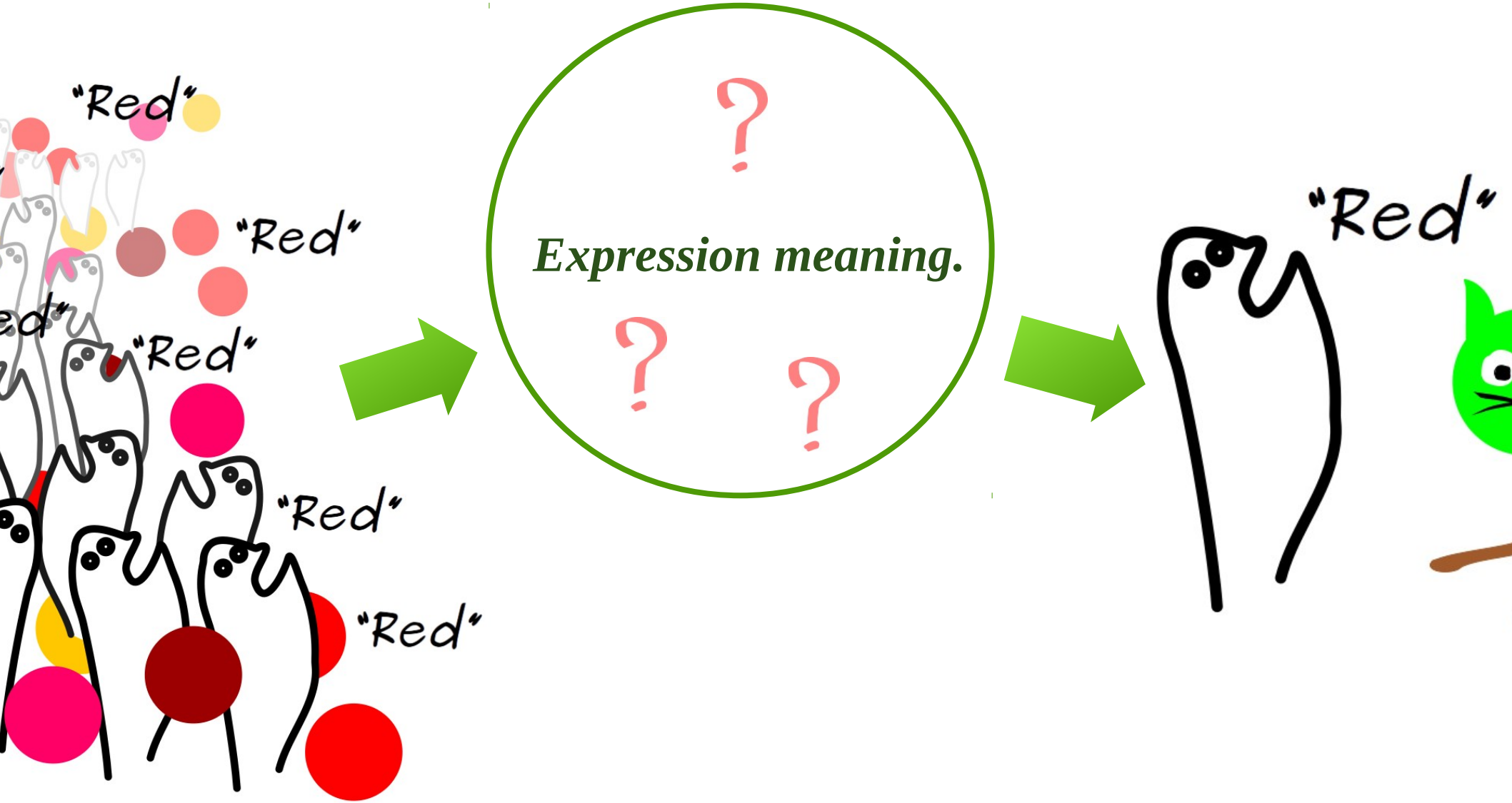
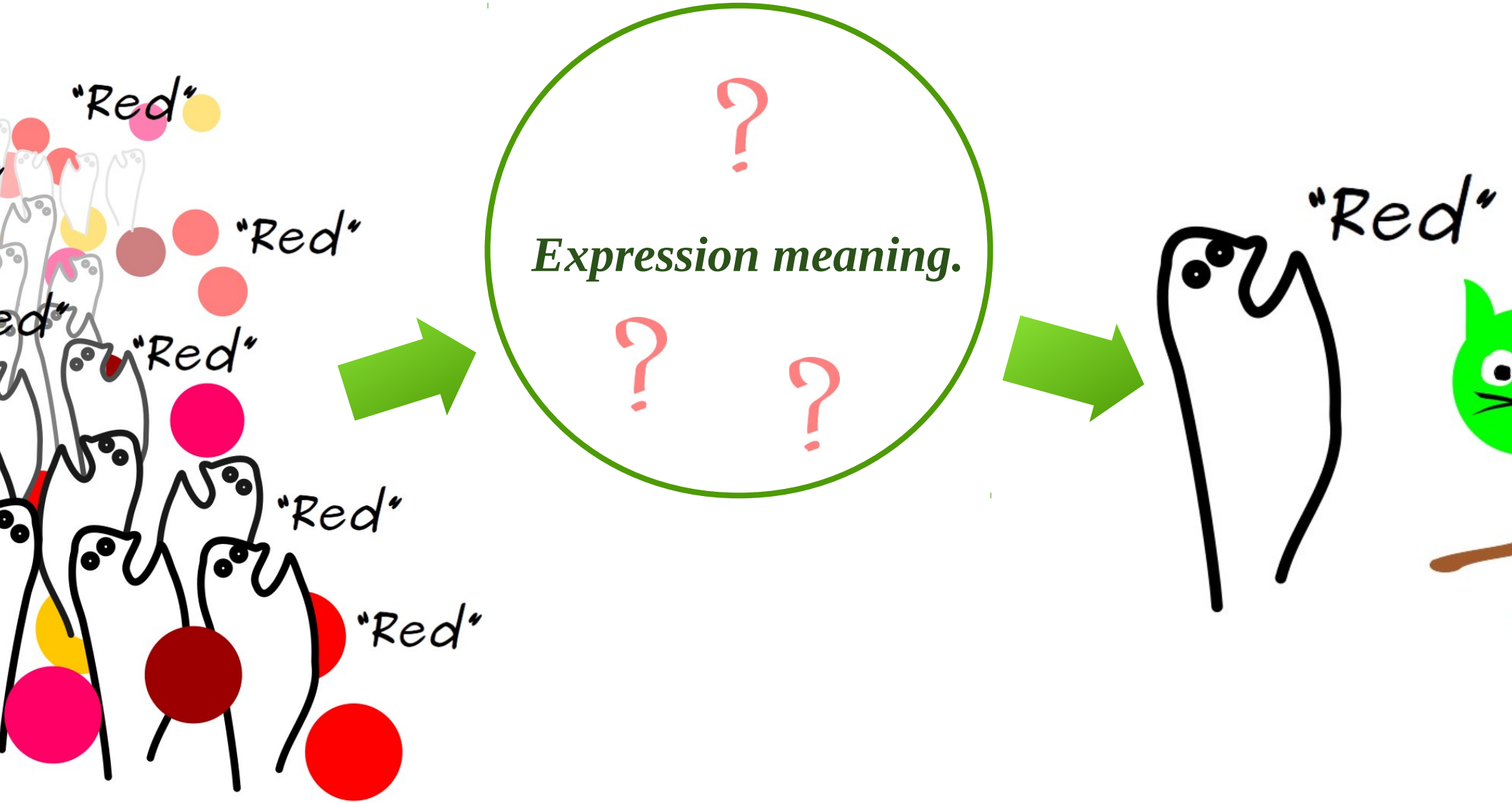


Why is DS *attractive* as a model of expression meaning?

DS as a model of expression meaning



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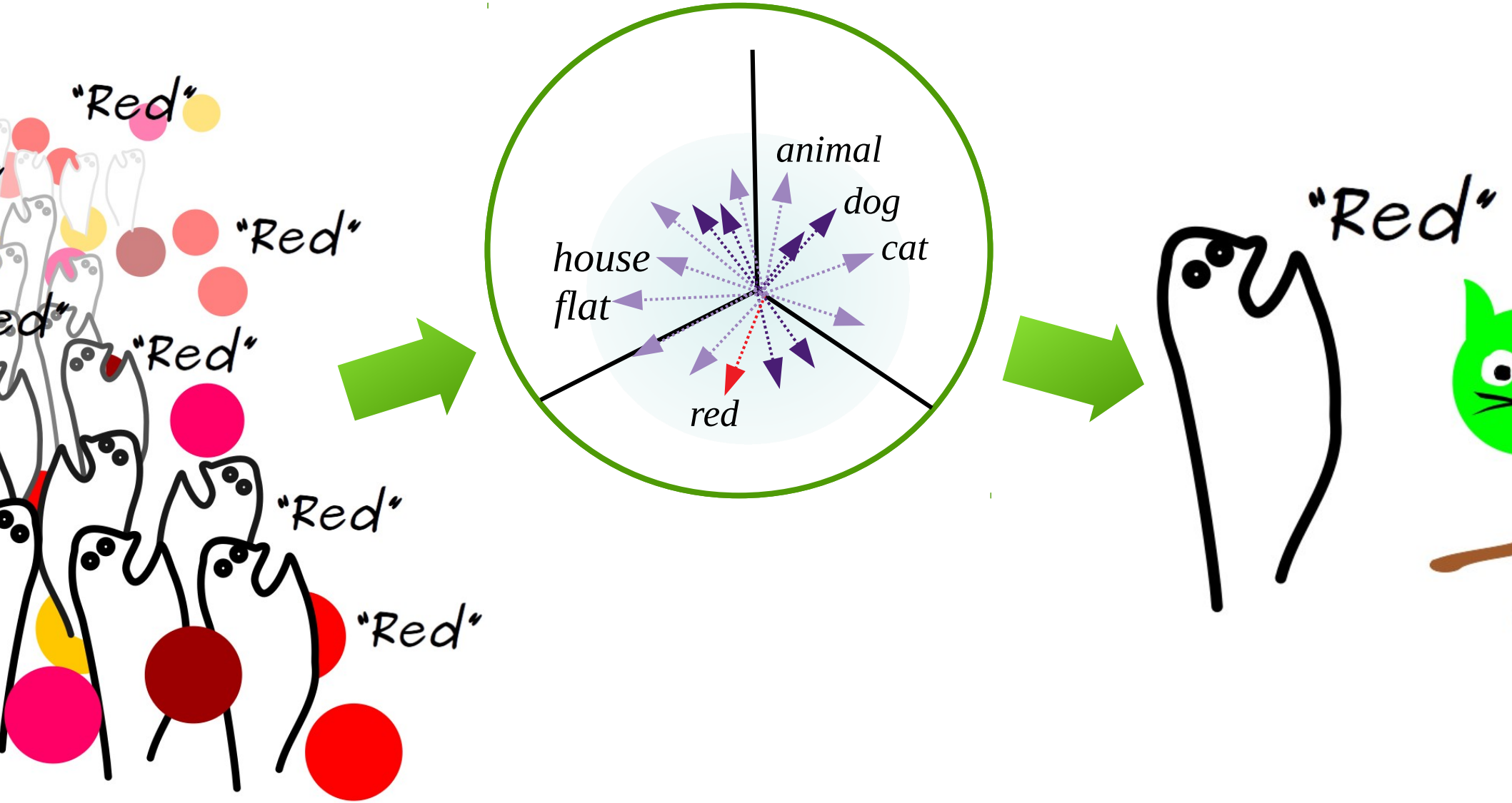

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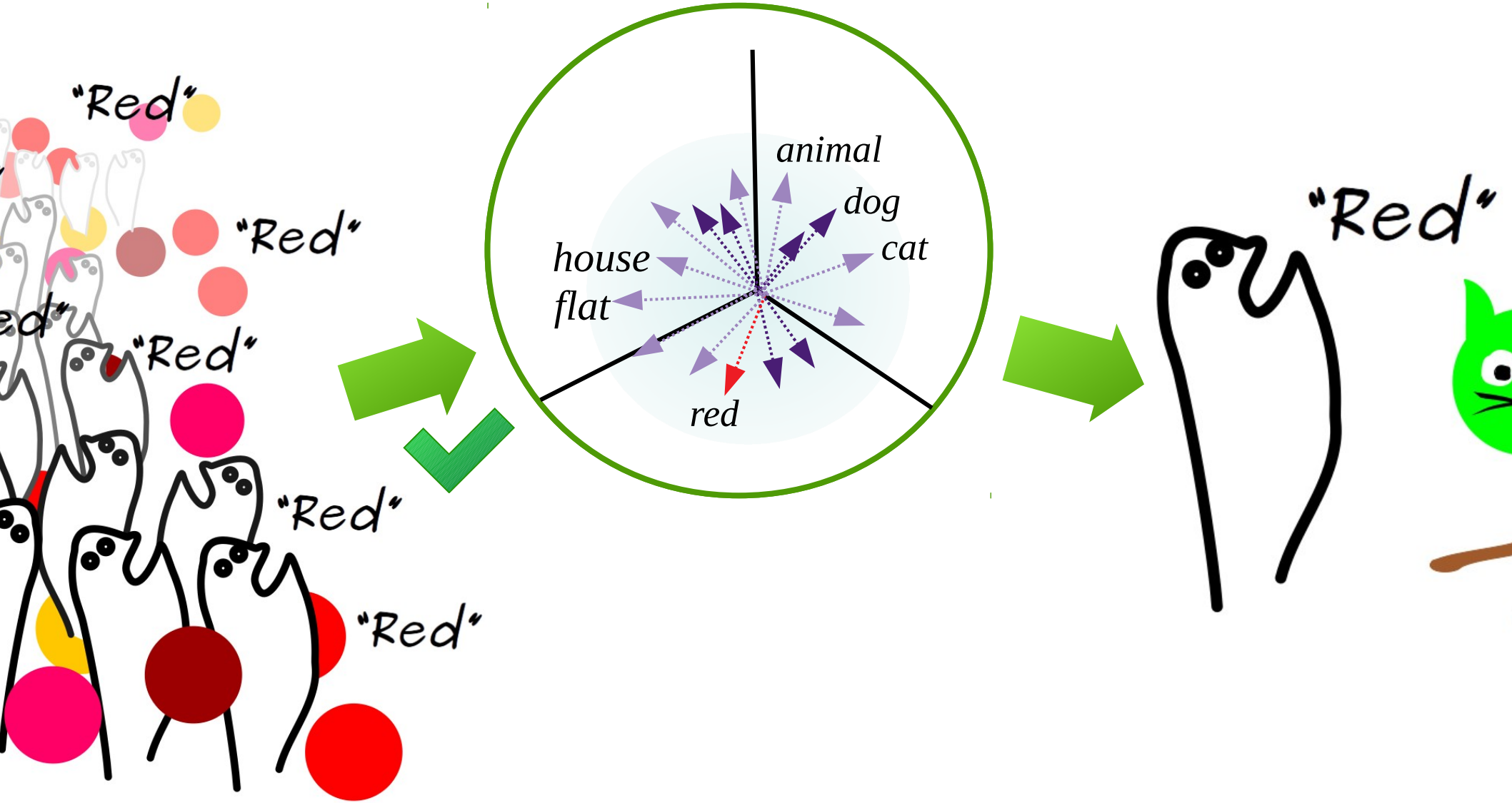

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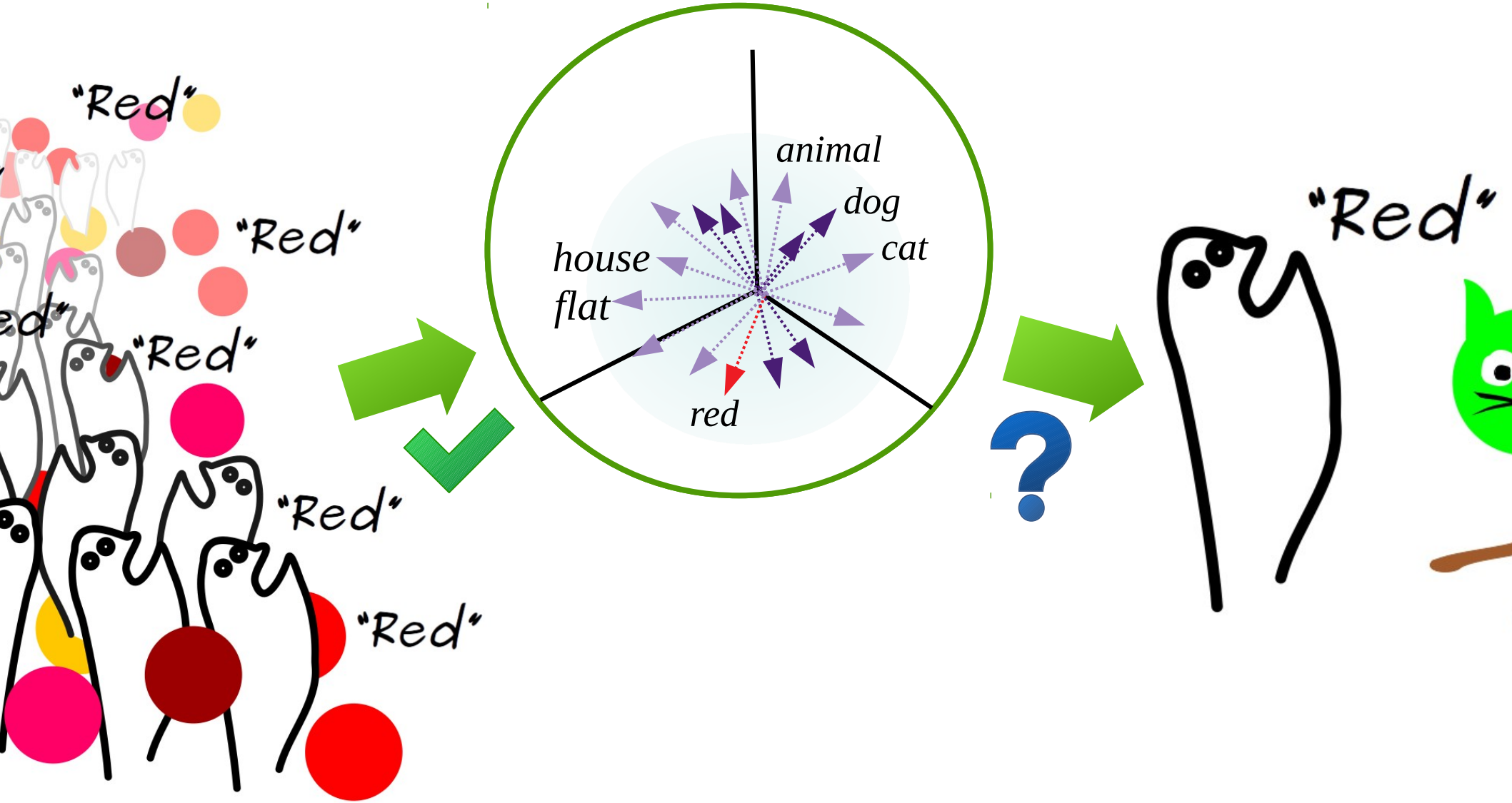
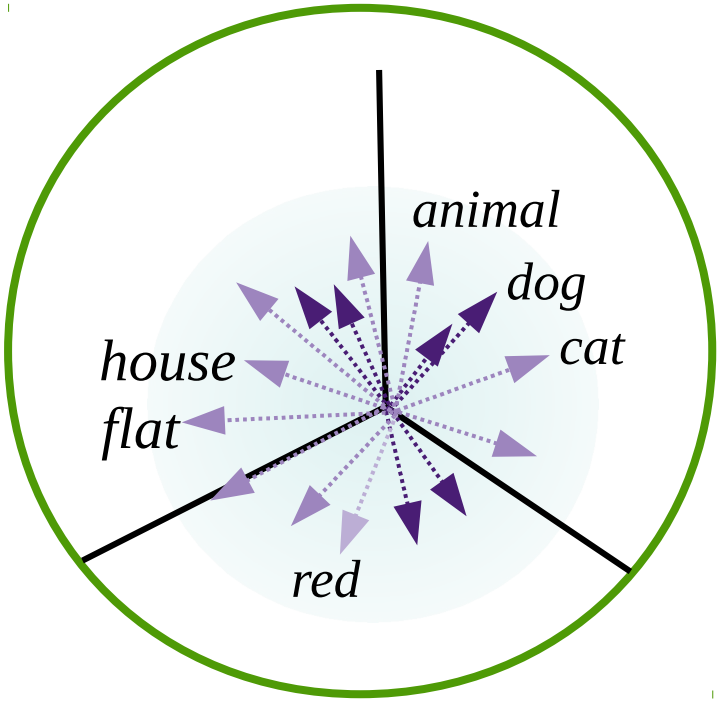


DS as a model of concepts



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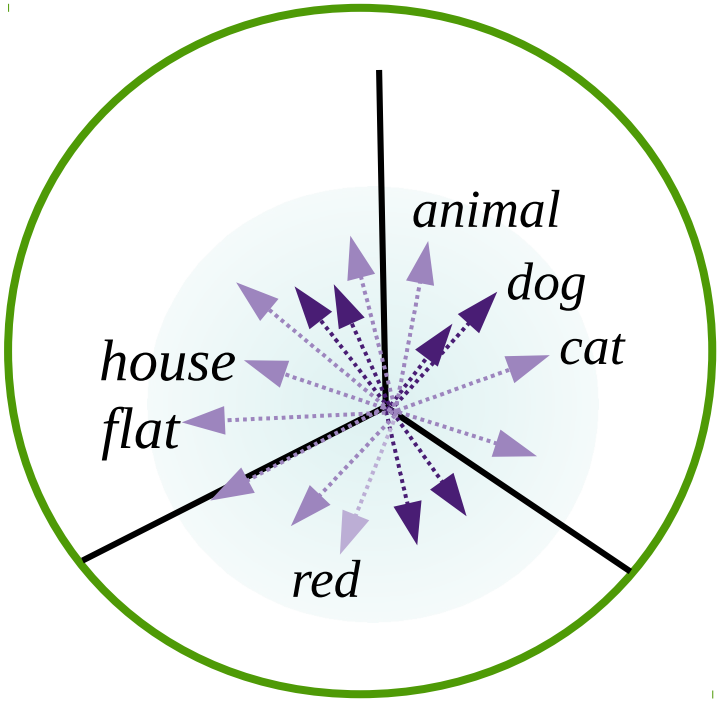

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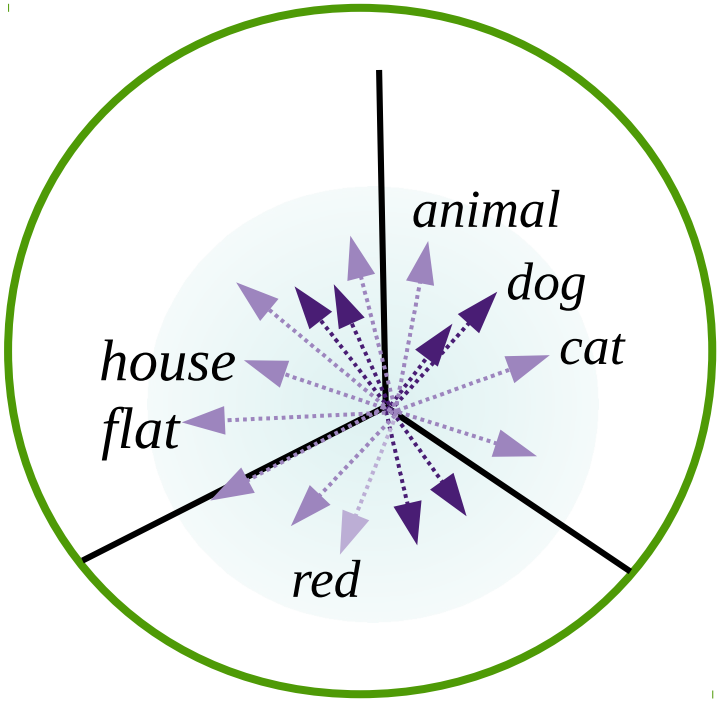

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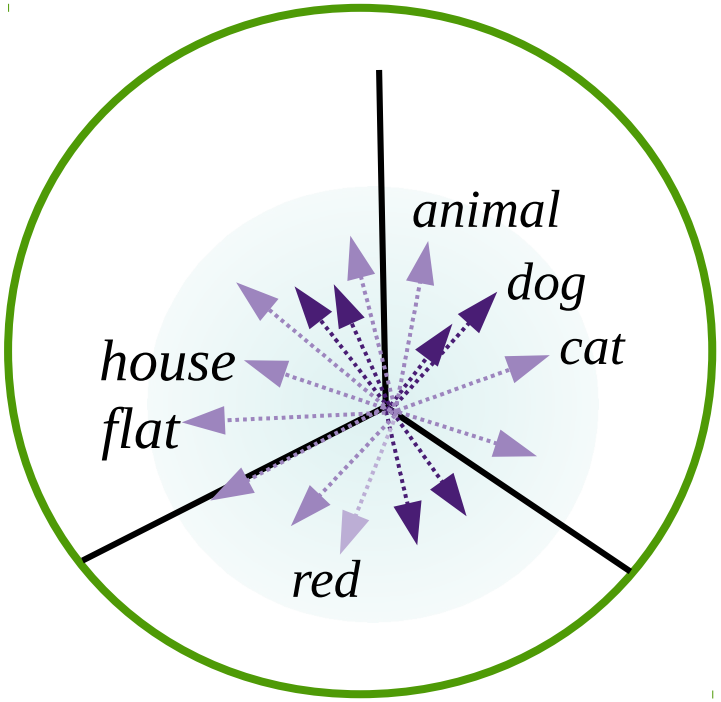

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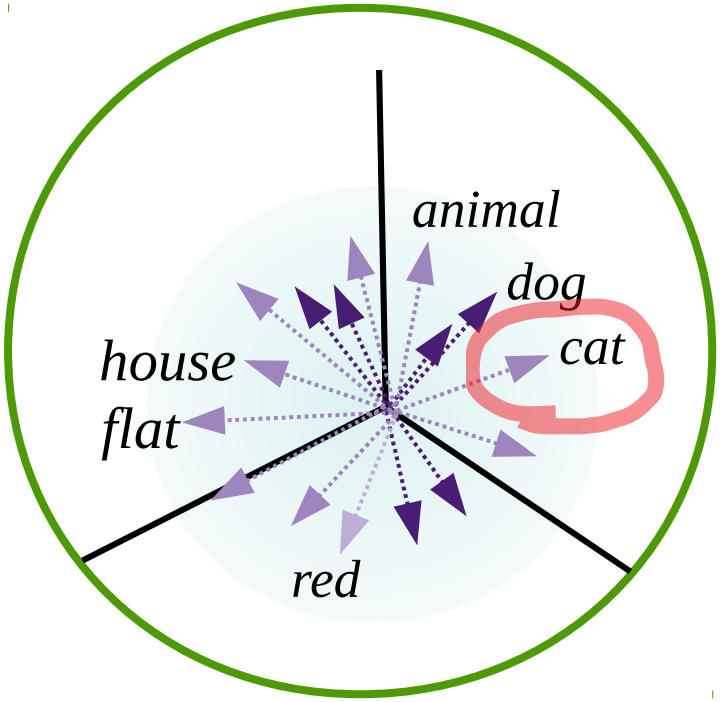
DS as a model of concepts



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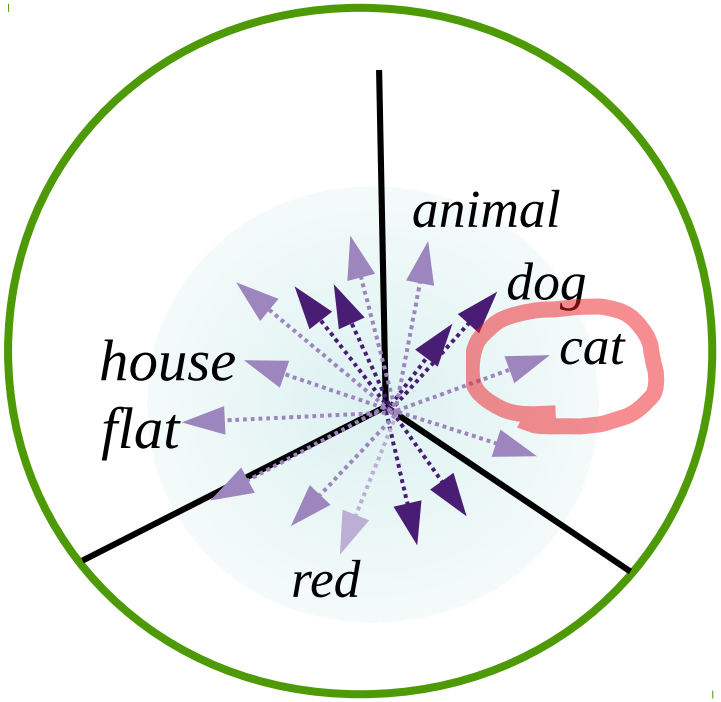

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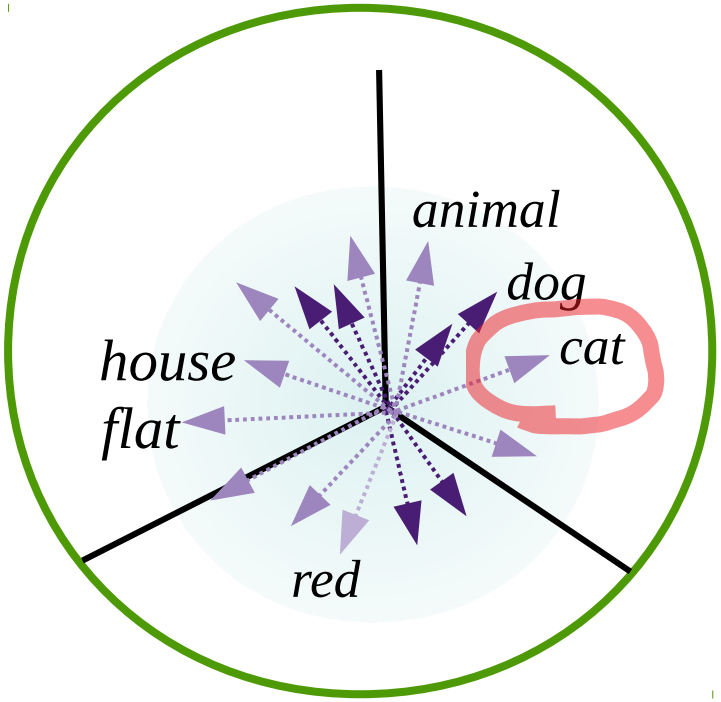

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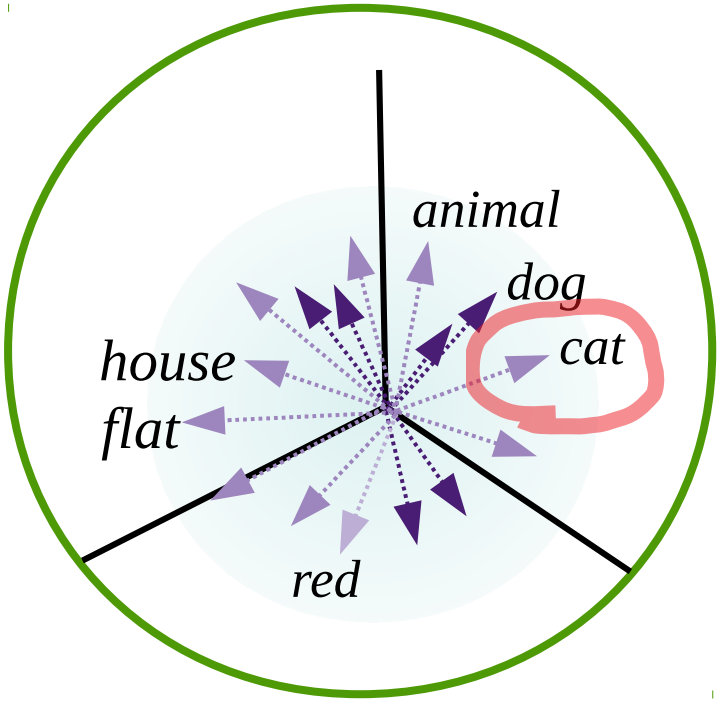
“cat”

DS as a model of concepts



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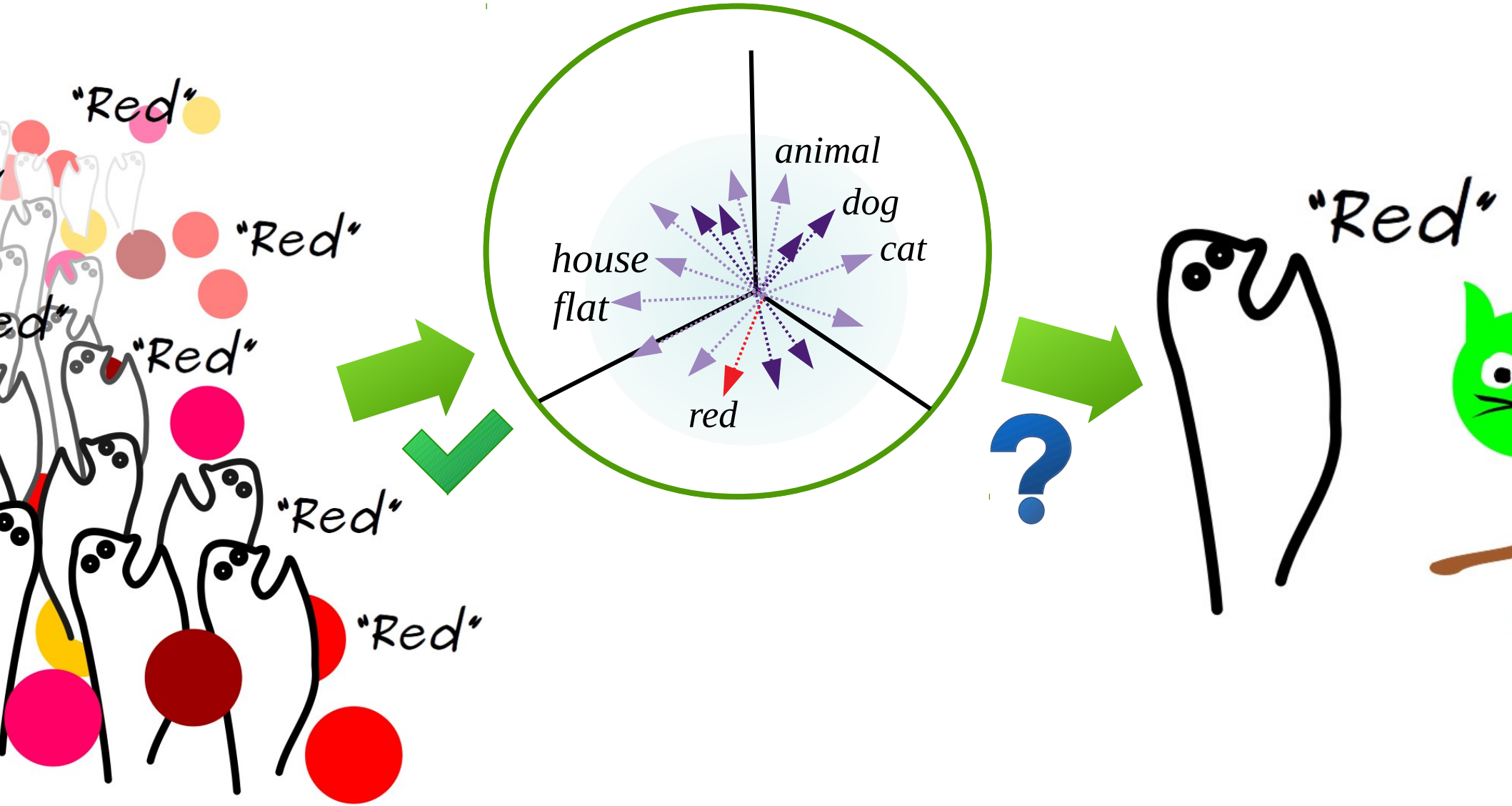
- So: concepts *of expressions* represent our ability to make sense of *expressions*.

DS as a model of expression meaning



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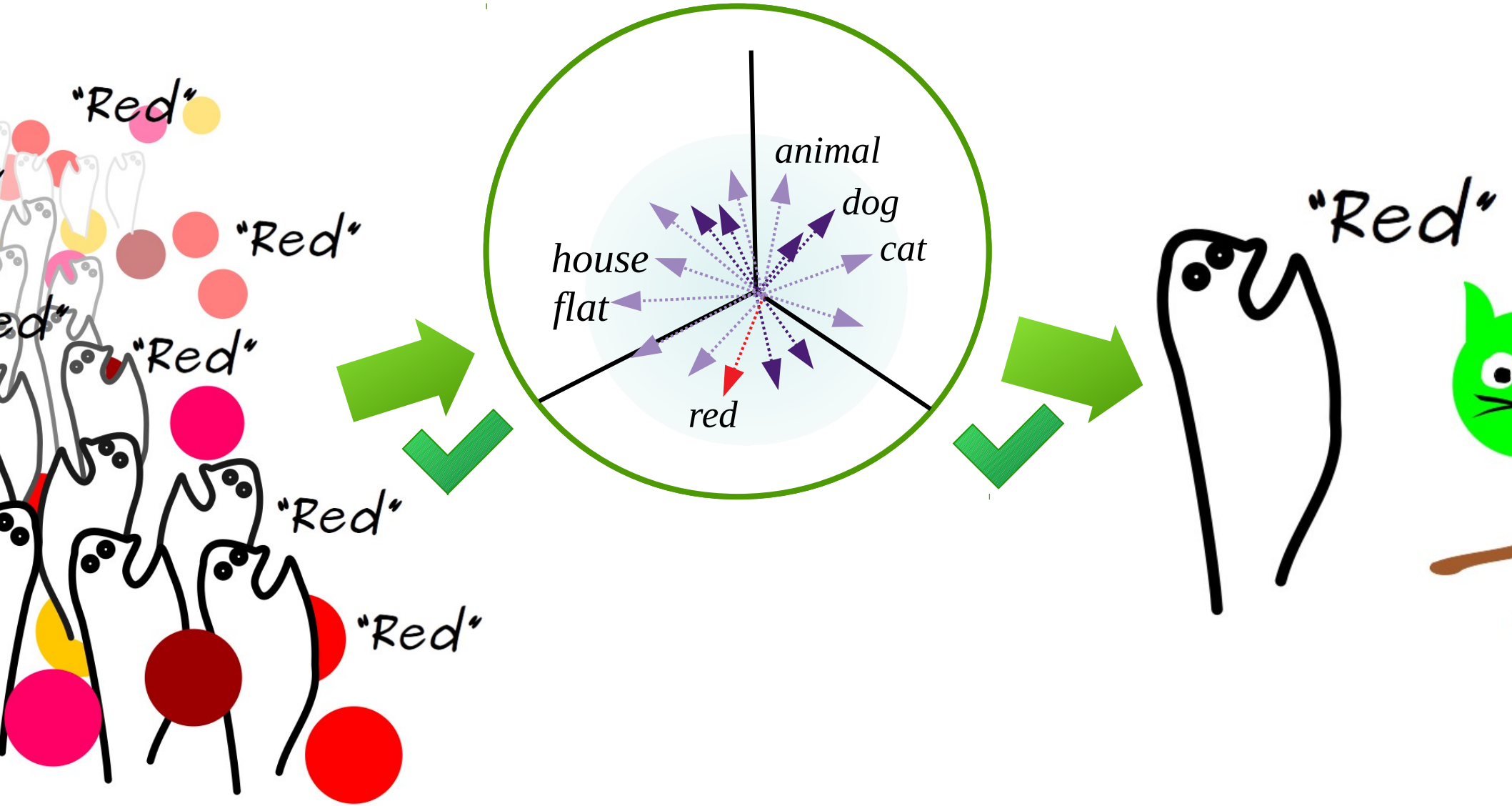

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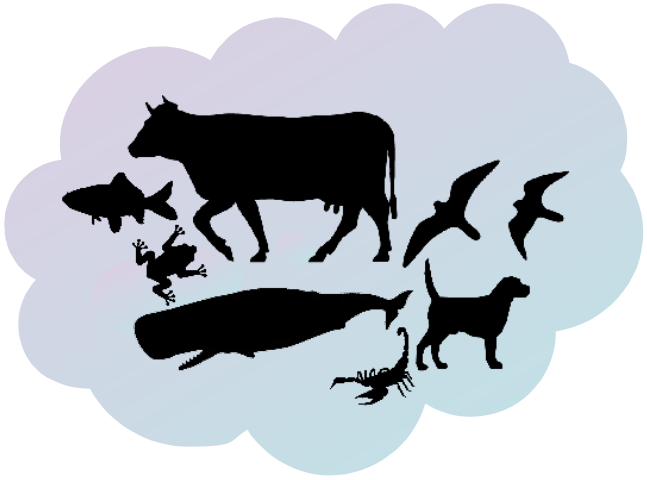
“cat”



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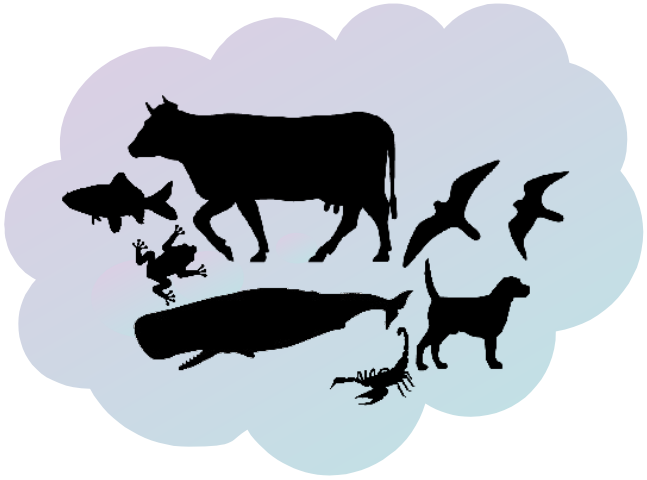

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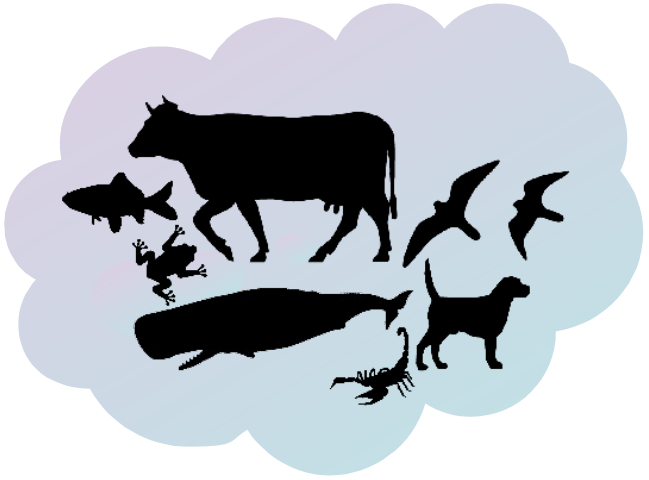

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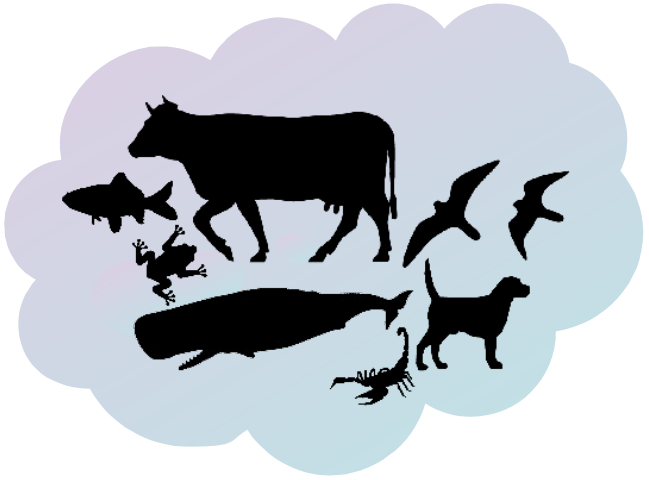

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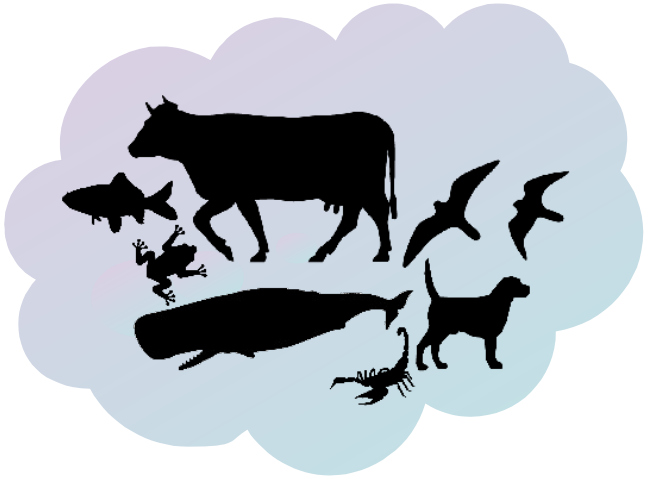

"cat"

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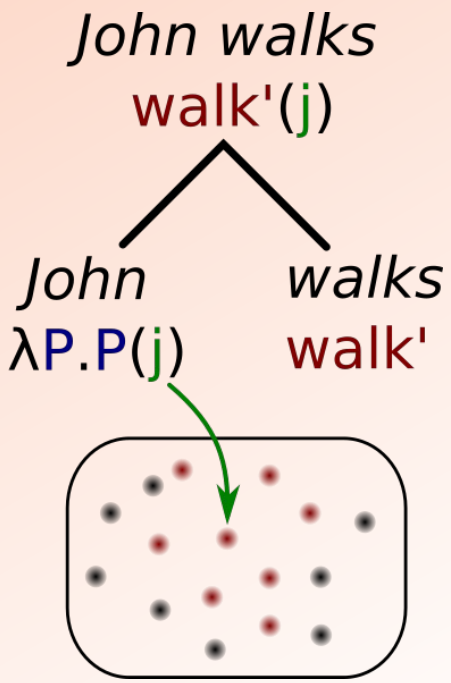
Why can DS be *sufficient* as a model of expression meaning?

Recall:

Formal semantics



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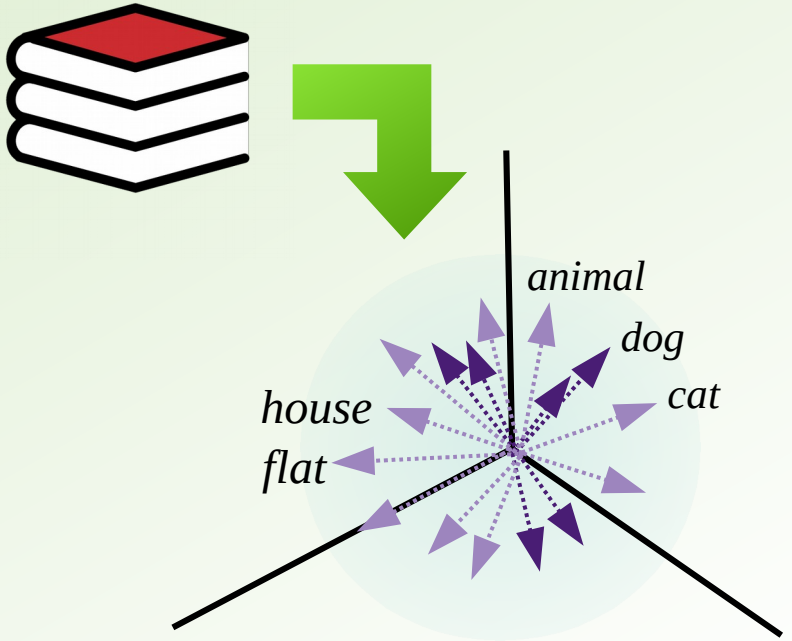

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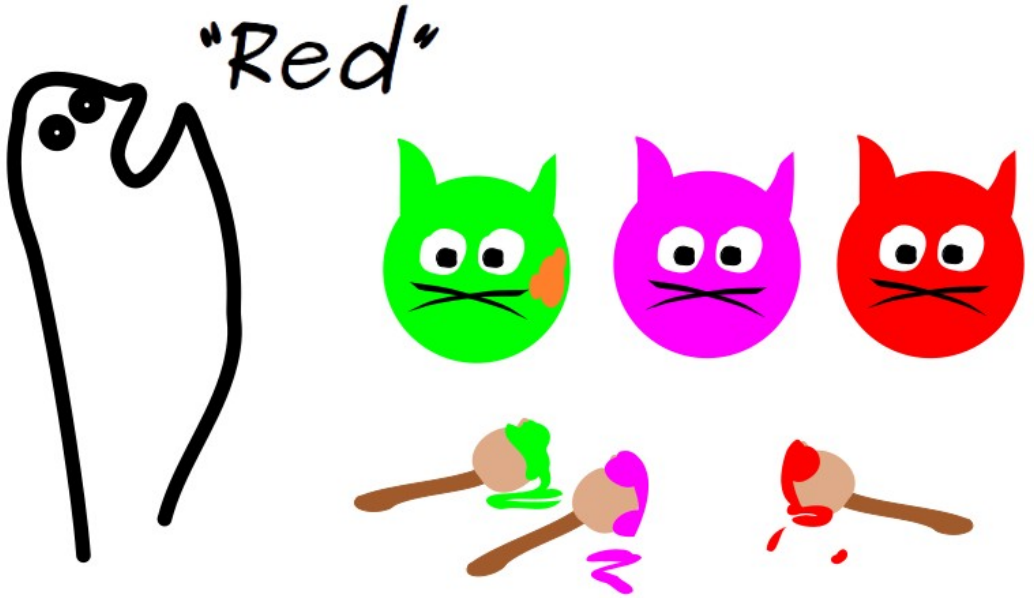

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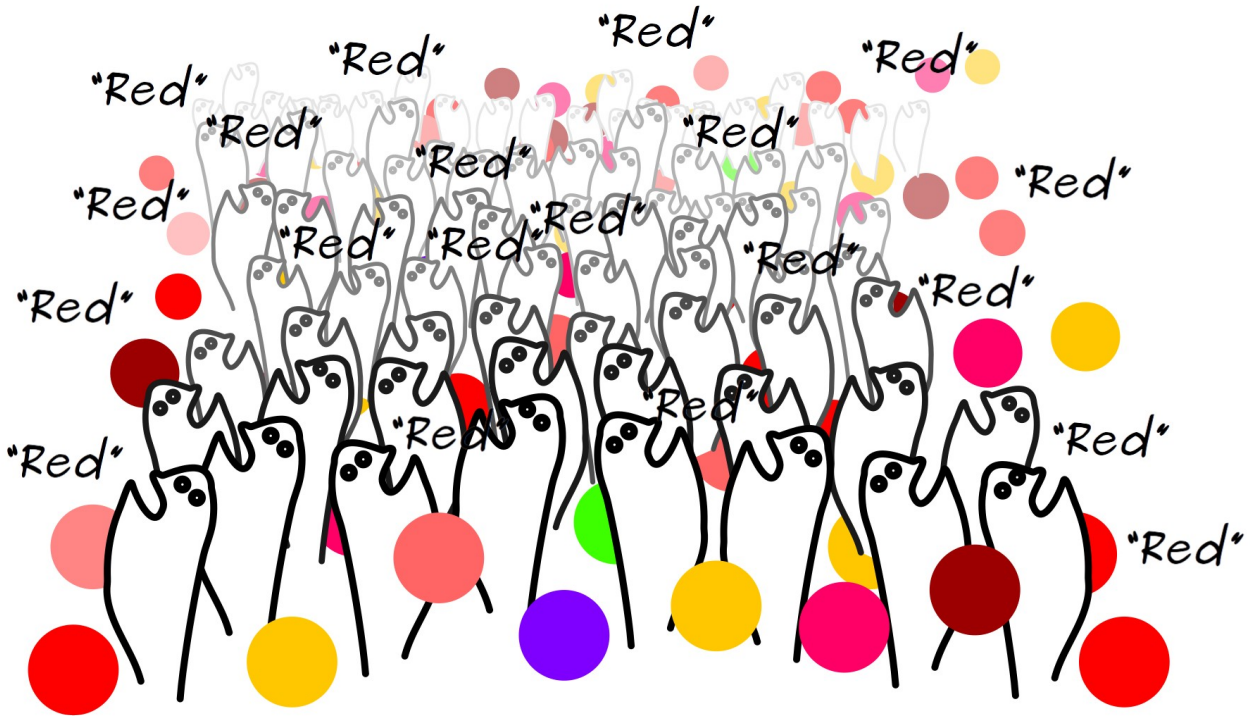

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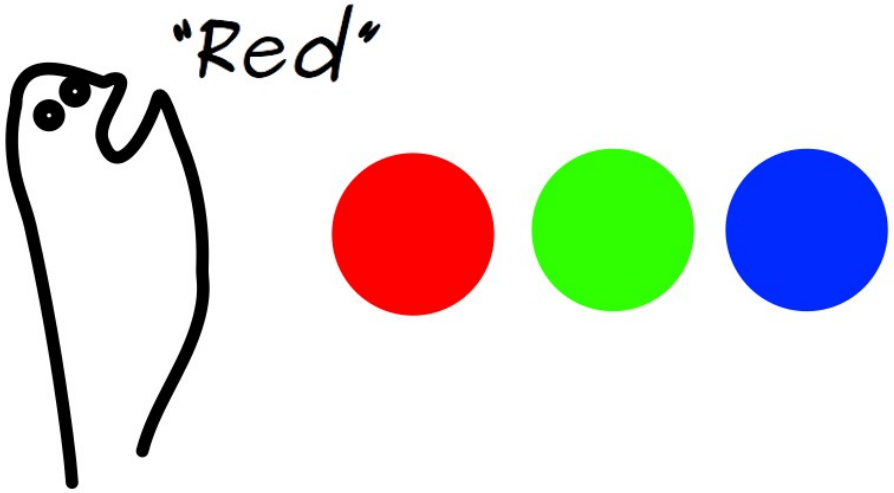

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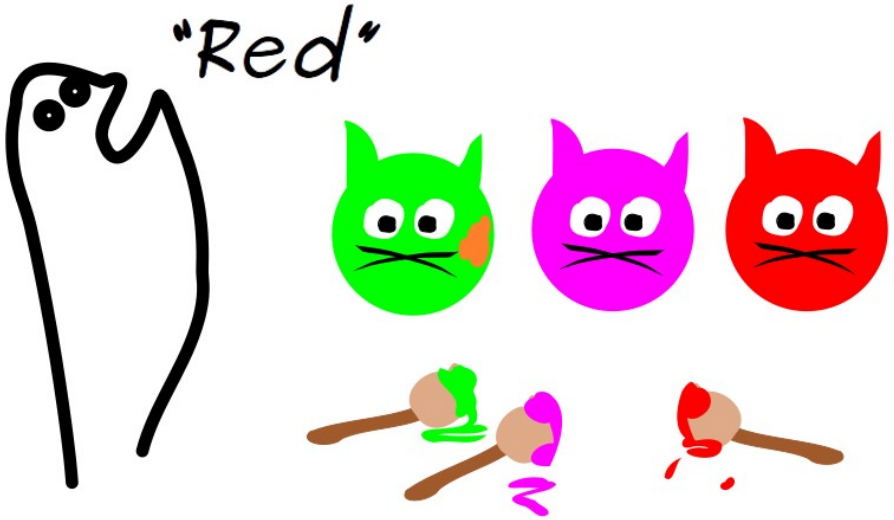

Why doesn’t FS model expression meaning? (3/3)

Mistaken

Supposed intuitions about expression meaning
in fact reflect stereotypical speaker meaning.

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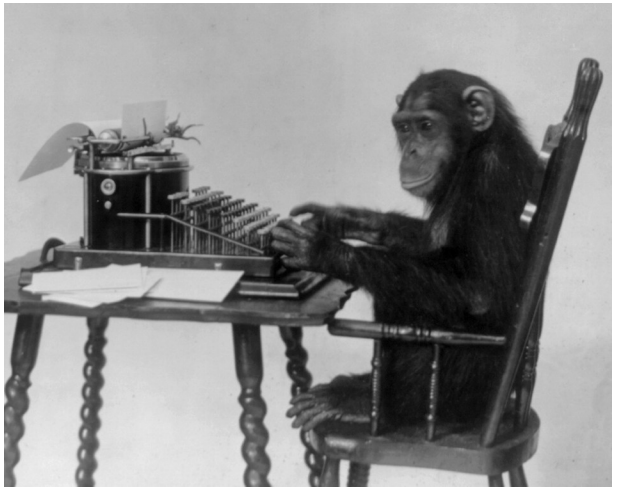

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Conclusion

Summing up

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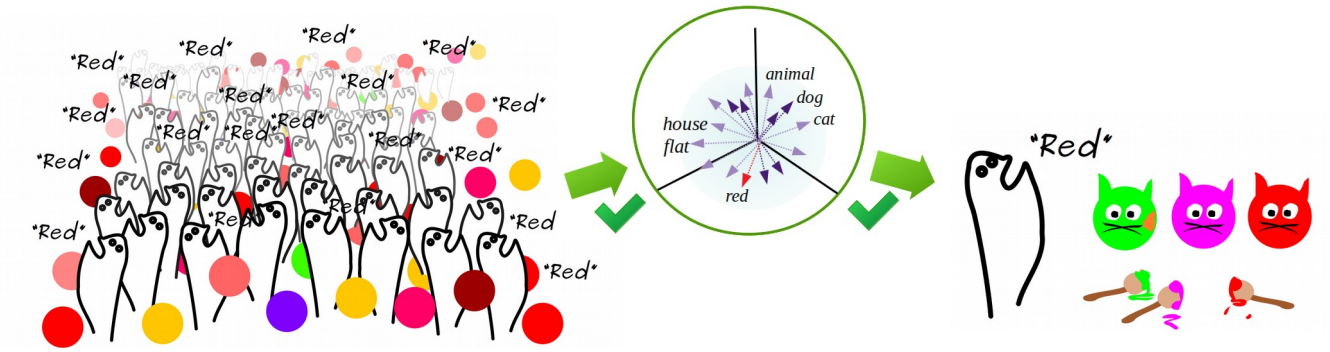
  - 

Summing up

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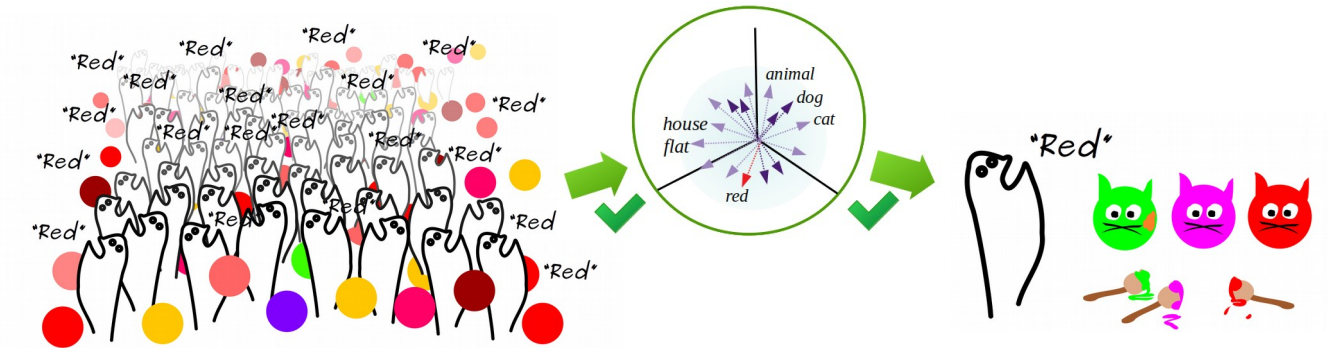
  - 

  - “cat” “animal”

Summing up

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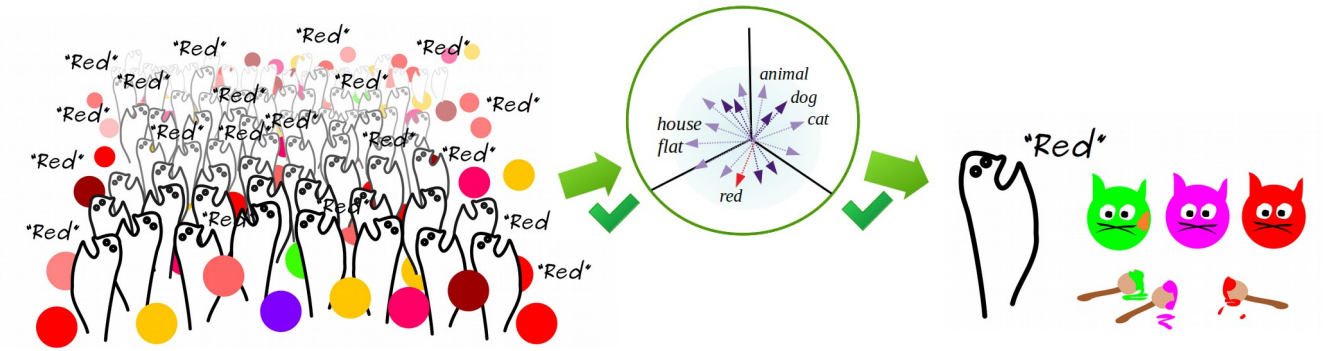
  - 

  - “cat” “animal”
  - it cannot do entailment (etc.), and isn’t supposed to.

Now what? (1/3)

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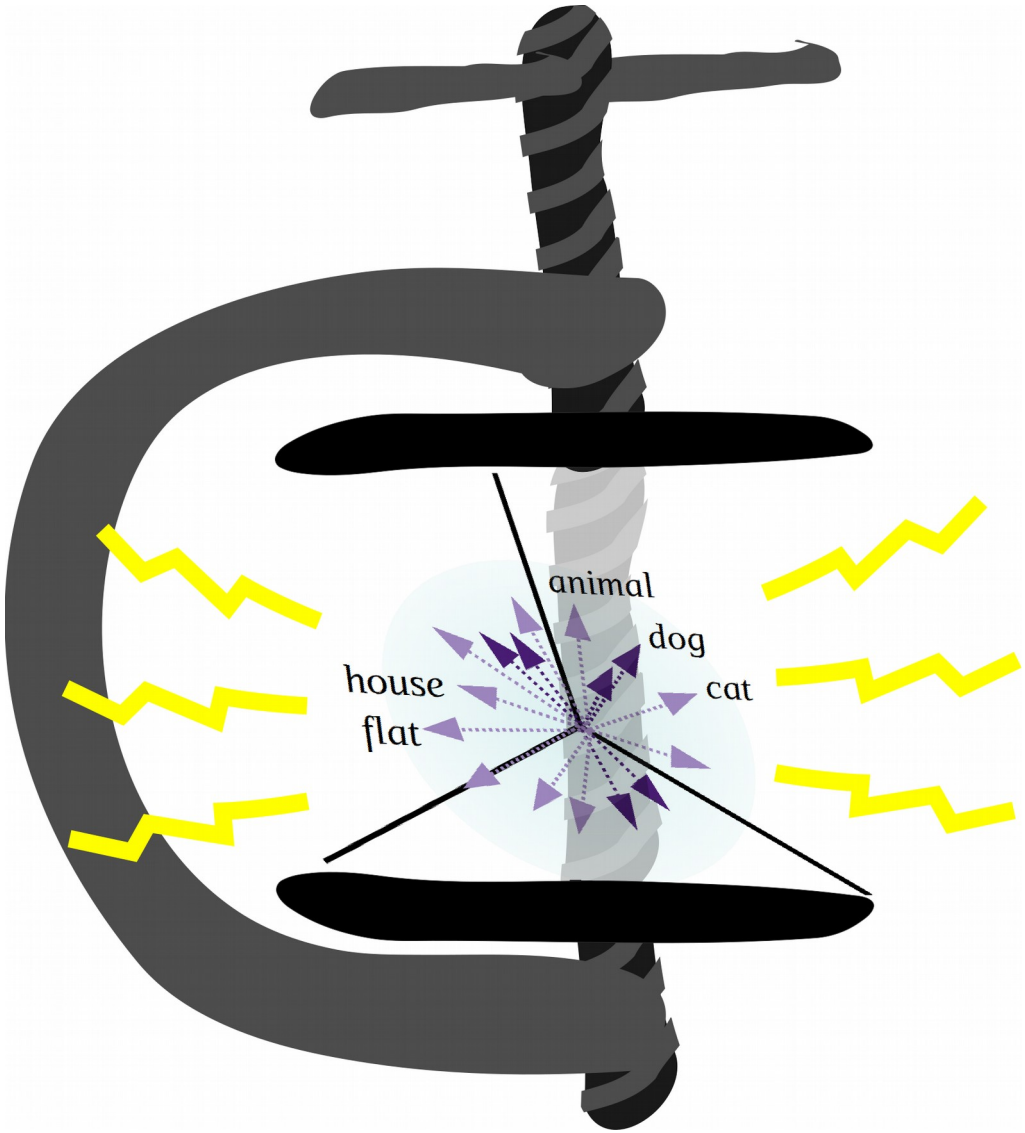

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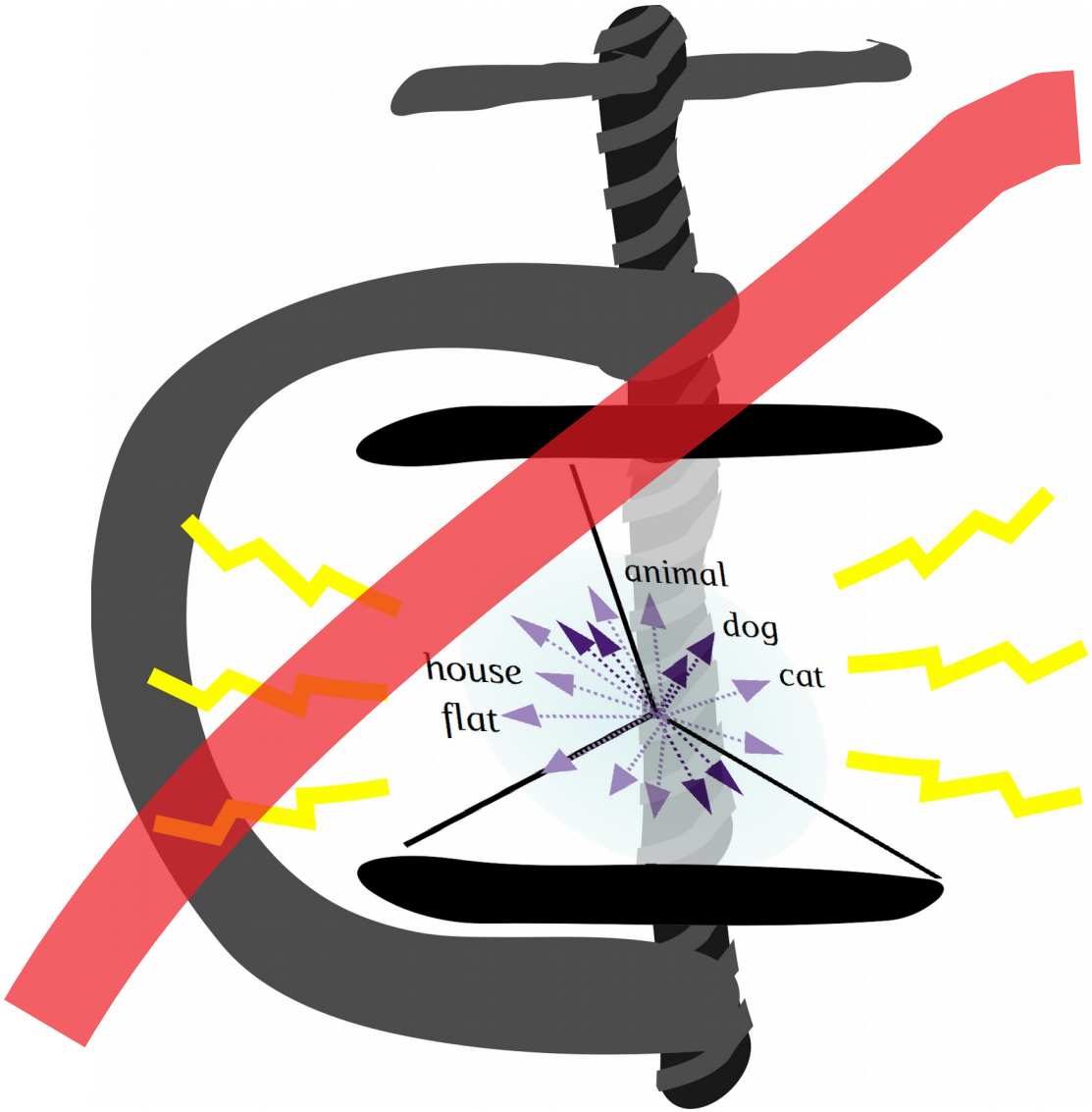
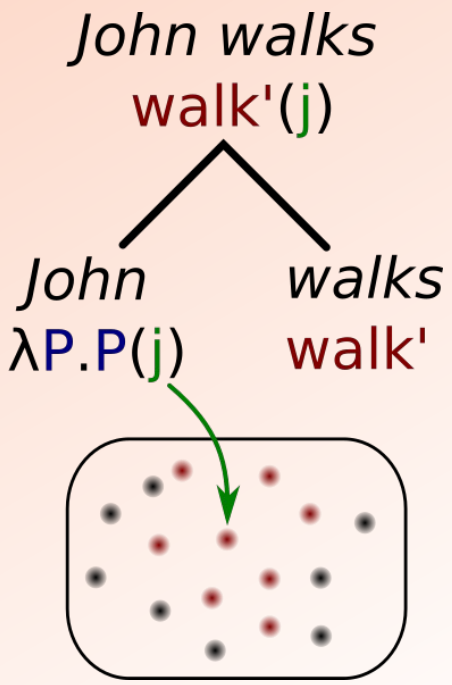
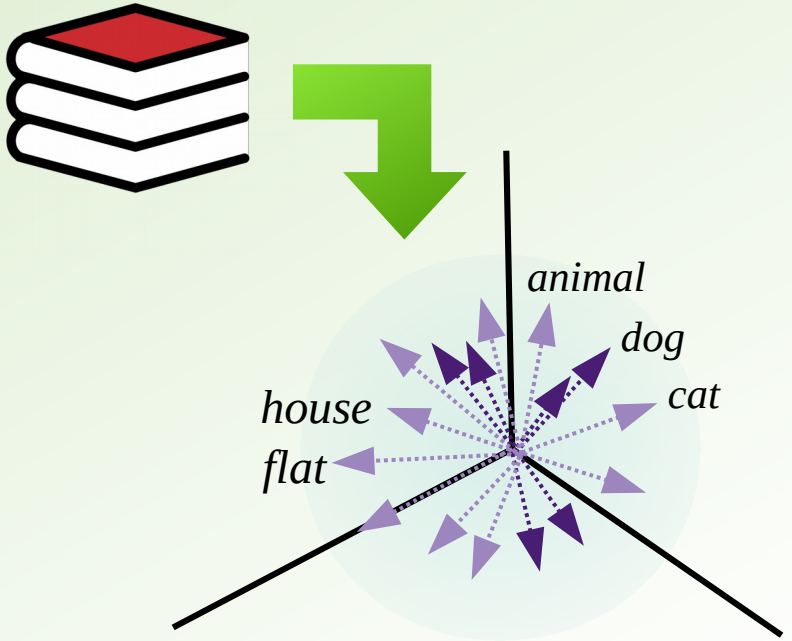


Now what? (2/3)

Formal semantics



Distributional semantics



Now what? (2/3)

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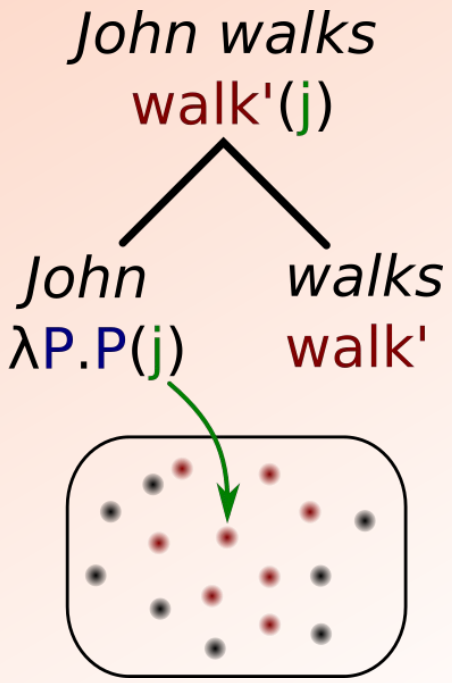

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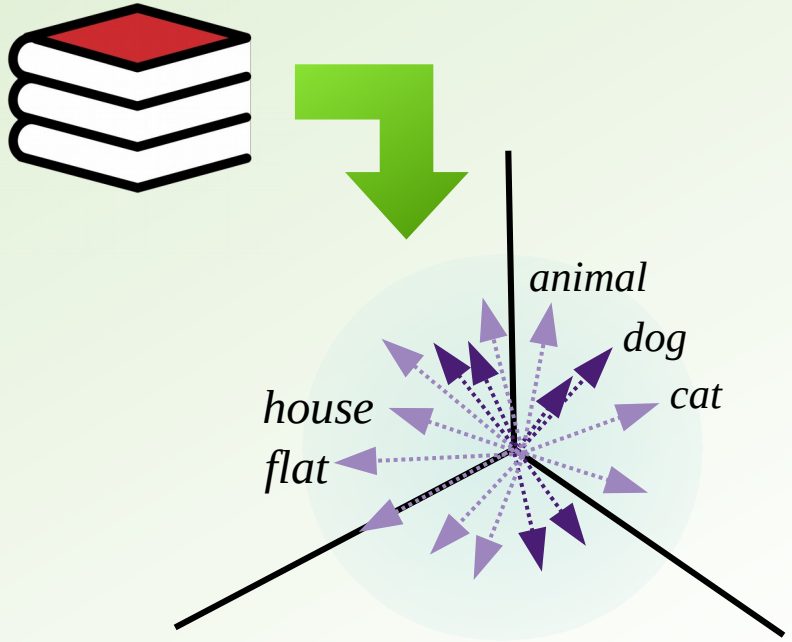
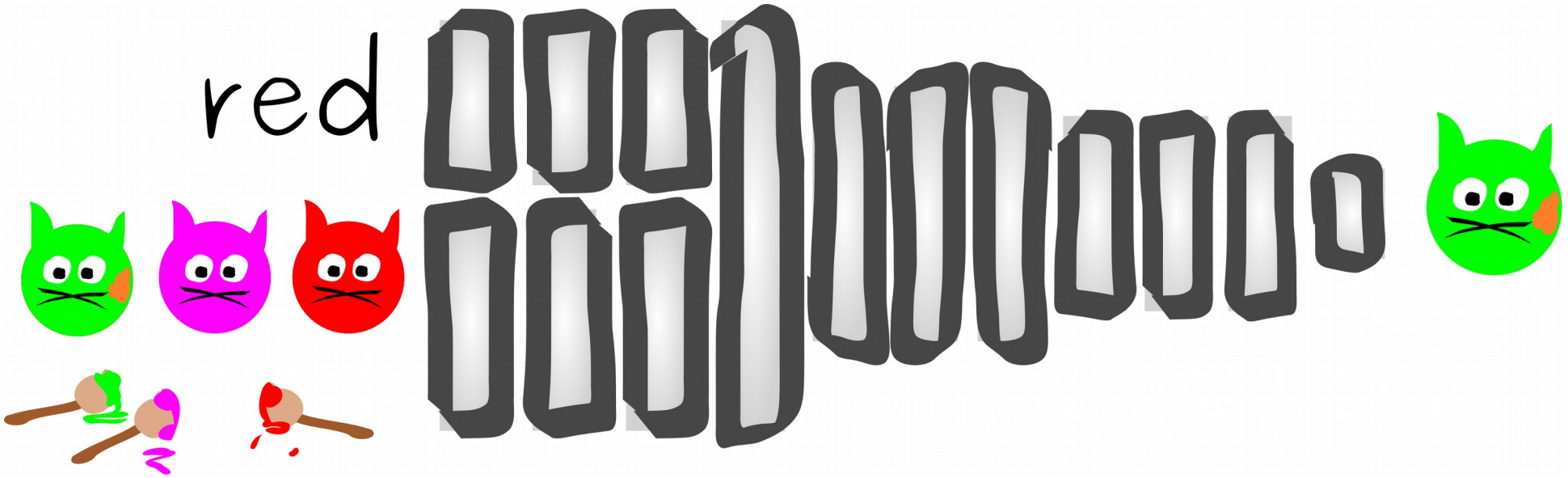
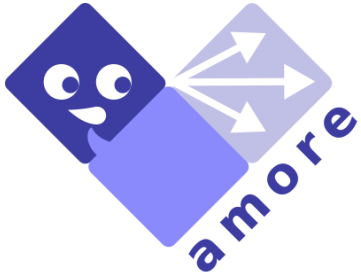


Now what? (3/3)



Don’t blame distributional semantics if it can’t do entailment

Matthijs Westera & Gemma Boleda
Universitat Pompeu Fabra



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Acknowledgments

This project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No 715154). This paper reflects the authors' view only, and the EU is not responsible for any use that may be made of the information it contains.

Thanks to the audience at Semantics and Philosophy in Europe 2018, and to the anonymous IWCS reviewers.

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Computational Linguistics and Linguistic Theory

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