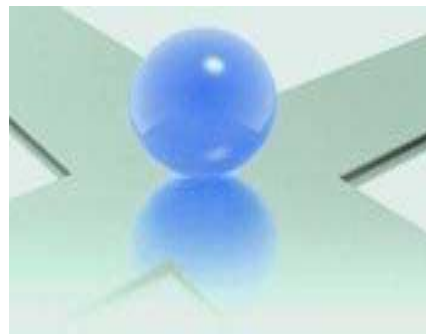


Linguistic Uncertainty: Why Communication is so **Difficult**

Yakov Ben-Haim

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Israel Institute of Technology



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1 *Highlights*

Highlights

§ Baseball and linguistic uncertainty.

- Metaphor for linguistic uncertainty.
- Paradox of certainty.

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§ Can language represent reality?

- Epistemic uncertainty.
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§ Can language represent reality?

- Epistemic uncertainty.
- Ontological uncertainty.

§ Smudge metaphor.

2 *Baseball and Linguistic Uncertainty*

§ **Source:**

**Yakov Ben-Haim, 2011,
Baseball and Linguistic Uncertainty.¹**

⁰\lectures\talks\lib\baseball-LU01.tex 13.1.2016

¹<http://decisions-and-info-gaps.blogspot.com/2011/08/baseball-and-linguistic-uncertainty.html>

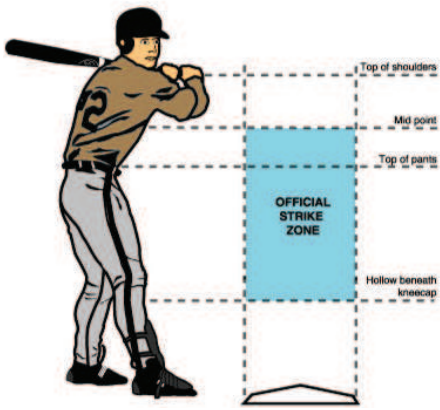


Figure 1: Strike zone.

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"You've got to lose some weight —
You're into your own strike zone."

Figure 2: Strike zone.

§ The strike zone.

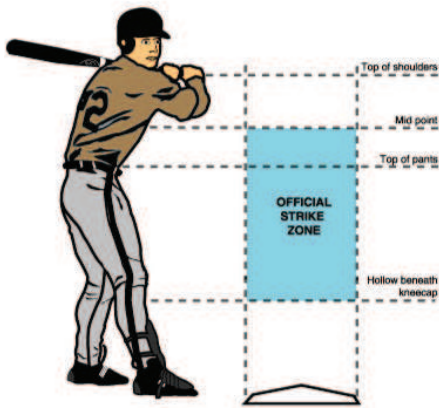


Figure 3: Strike zone.



"You've got to lose some weight —
You're into your own strike zone."

Figure 4: Strike zone.

§ Baseball commentator.²

The art of pitching:

Throwing a baseball is like shooting a shotgun.

You get a spray. . . .

²Fig. 1 from: http://www.google.com/imgres?hl=en&sa=X&biw=1680&bih=917&tbm=isch&prmd=imvns&tbid=aPHpqYR3N7rules.org/pitching/index.htm&docid=A_JNZFHc1xPJUM&imgurl=http://official-rules.org/image/baseball-pitching-mlbstrike.jpg&w=380&h=395&ei=ajjVT.D4DM7c4QTKyryKAw&zoom=1&iact=hc&vpx=164&vpy=157&dur=6435&hovh=229&hovw=380

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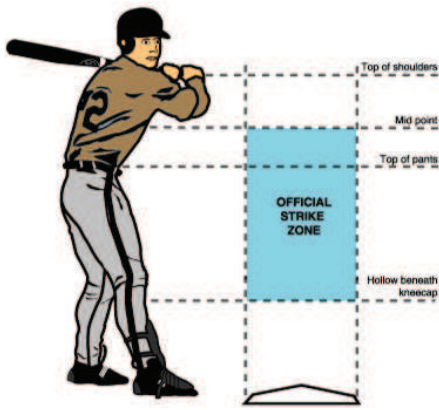


Figure 5: Strike zone.



Figure 6: Strike zone.

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As a pitcher, you have to know your spray. You learn to control it, but you know that it is there.

The ball won't always go where you want it. ...

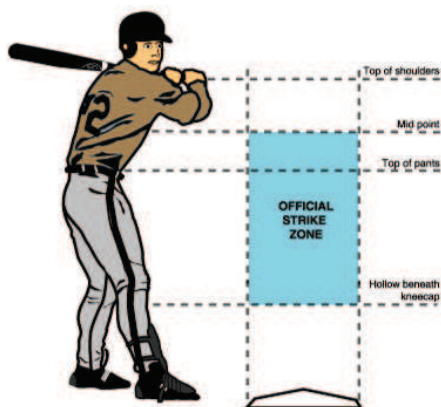


Figure 7: Strike zone.



"You've got to lose some weight —
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Figure 8: Strike zone.

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Throwing a baseball is like shooting a shotgun.

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As a pitcher, you have to know your spray. You learn to control it, but you know that it is there.

The ball won't always go where you want it.

And furthermore, where you want the ball depends on the batter's style and strategy, which vary from pitch to pitch for every batter.

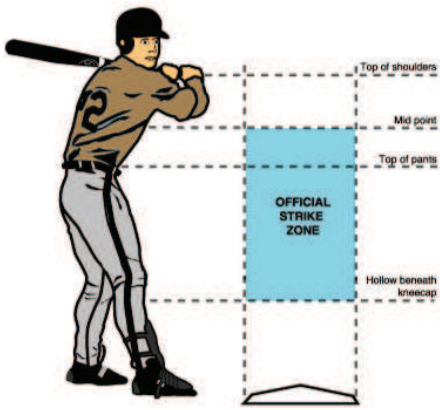


Figure 9: Strike zone.

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"You've got to lose some weight —
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Figure 10: Strike zone.

§ **Baseball pitchers manage uncertainty!**

§ **Suppose you want to throw a strike.**

- Pitch to low outside corner?

-

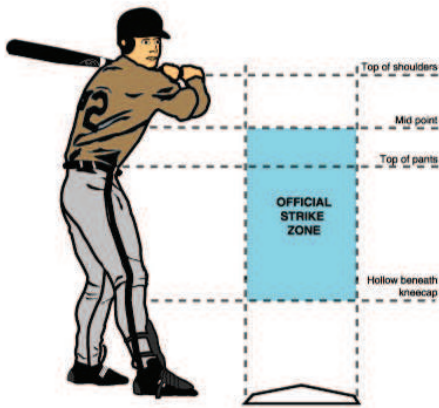


Figure 11: Strike zone.



"You've got to lose some weight —
You're into your own strike zone."

Figure 12: Strike zone.

§ **Baseball pitchers manage uncertainty!**

§ **Suppose you want to throw a strike.**

- Pitch to low outside corner?
- No. Up and in a bit due to:
 - Spray.
 - Batter's variable stance.

§ Pitch-uncertainty like word-uncertainty.

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§ Example: “liberal”.

- Webster's definition:
 - Generous, open-handed.
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 - Broad-minded.
 - Not literal or strict.

§ Liberal in 20th c US supports **big** govt:



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Then every batter will strike out.
- Is there a **problem** here?

§ **Which is it?** Pitcher or batter? It can't be both.
Whose certainty dominates?

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§ **Deep philosophical problem** here.

There **cannot be complete certainty** in a world with:

- Free will, surprise, or discovery.
- Conflict of action or interest.
- Perfect symmetry (leading to conflict of action).

§ Back to human speech:

- **If there is no uncertainty** in what I will say,
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- Makes talk, baseball and life interesting.
- Is logical necessity for free will, conflict, symmetry.

3 *Language, Meaning and Uncertainty*

§ **Source:**

Yakov Ben-Haim, 2006,
Info-Gap Decision Theory, 2nd edition,
section 13.2.

§ Why is communication difficult?

- “Today is **November** 6th.”

Date of Russian *October* revolution.

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§ **Approach: Info-gap theory.**

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 - **“Penumbra of vagueness”, “stimulus meaning”** of words. (Quine).

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- Reality is uncertain (ontological uncertainty).
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- Reality is uncertain (ontological uncertainty).
- Lang. and knowledge are uncertain (epistemic uncer.)
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- Mapping of dots between smudges is uncertain.

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- Mapping of dots between smudges is uncertain.

§ Can assertions be TRUE?

§ **Ontological uncertainty: The world is uncertain.**

- What we can **know about** is not a **crisp dot** but a **foggy smudge**.
- Examples of **smudgy reality**: QM, chaos, comp. indet.

§ **Epistemic uncertainty:**

Knowledge and language are uncertain.

- What we can **know** is not a **crisp dot** but a **foggy smudge**.

§ **Can language represent reality?**

- Reality is uncertain (ontological uncertainty).
- Lang. and knowledge are uncertain (epistemic uncer.)
- **Epistemic smudge** represents **Ontological smudge**.
- Mapping of dots between smudges is uncertain.

§ **Can assertions be TRUE?** Yes, in a smudgy sense.

Uncertainty:

The **freedom** to err,

The **opportunity** to create and discover.

What would we do without it?



What do you think?