Elision, Disambiguation, and Pliant Distinction

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> It can happen that each of two substances is kept track of in a normal way over a variety of encounters, but that there are also mistakes made so that information gathered from both gets collected under the same concept. For example, one might have two people "mixed up" or "confused" in one's mind. Similarly, mass and weight were not distinguished throughout most of the history of science. ... Two or more are being thought of as one.[1]

[1] Millikan (1994), p.68.

Millikan gives two examples of "two ... are being thought of as one", and she labels both as a mistake. The first is confusing two people. The second is failing to distinguish between weight and mass.

THESIS: For some distinct $F \neq G$, it can be better to think of the two as one even while knowing that they are distinct - indeed, weight and mass is just such a case. These are *pliant distinctions*.[2]

[2] Ripley (2018) also talks about pliant distinctions, though not under that terminology (indeed, she uses the same example of weight and mass). She is primarily concerned with vagueness, and doesn't relate pliant distinctions to the philosophical and scientific examples I'll give, nor does she talk about information theory and concepts. Nevertheless, I see myself as building on a key insight of hers.

Elision and a distinction among distinctions

ELISION: A concept ϵ elides distinct $F \neq G$ just in case: F and G are more eligible to be the content of ϵ than any other candidate content H, and are equally eligible with respect to one another. We say that ϵ is an *eliding concept* and that any concept which represents F or G as such is a *disambiguation of* ϵ.

- Caspian, unaware of the distinction between $<$*pangolin*$>$ and $<$*armadillo*$>$.[3]
  - Caspian's concept c doesn't represent either property univocally nor disjunctively.
  - Key symptom of defectiveness: if Caspian were to learn of his situation, he would jettison c from his conceptual repertoire.
  - For Caspian (and us), the distinction between pangolins and armadillos is always to be respected - it is *categorical*. Letting $\mathcal{C}_S$ denote the conceptual repertoire of an agent S:

    CATEGORICAL DISTINCTION: A distinction between $F \neq G$ is *categorical* for an agent S just in case: if S were aware that they possess a concept ϵ that elides F and G, and S were epistemically competent[4] with respect to both F and G, they would retain only disambiguations $d_F, d_G \in \mathcal{C}_S$.

  What if the agent retains *both*, the disambiguations d_F, d_G *and* the eliding concept ϵ? That would put them in a position to *sometimes* respect a distinction and *sometimes* ignore it.

- The word 'heaviness' and its cognates, and the distinction between $<$*weight*$>$ and $<$*mass*$>$.[5]
  - Uneducated usage of these words conflates weight and mass.[6]

[3] Philosophers discussing confusion/conflation tend to talk about examples like this - see Kvart (1989), Fodor (1994), Millikan (2000), Camp (2004), Lawlor (2005), Schroeter (2008), Fine (2009), Lawlor (2010), Sainsbury and Tye (2012), Dickie (2015), and Unnsteinsson (2016).

[4] That is, knows enough about F and G for the relevant dispositions to manifest.

[5] Reminder: weight varies according to where you are, mass does not.

[6] See Taibu, Rudge, and Schuster (2015).

- Those who grasp the distinction between weight and mass must possess disambiguations WEIGHT and MASS, but they *also* retain and use their confused concept:
  - We are placing bets on which is heavier, the desk lamp or Farhad the cat.
  - Unbeknownst to us, Farhad is in deep space and has more mass than the lamp. Who won the bet? Verdict: the bet is off, no one *could* win.
  - This verdict makes sense if we initially used an eliding concept, a concept HEAVINESS that ignores the distinction between weight and mass.
- So the distinction between weight and mass is *pliant*:

  PLIANT DISTINCTION: A distinction between $F \neq G$ is *pliant* for an agent S just in case: if S were aware that they possess a concept ϵ that elides F and G, and S were epistemically competent with respect to both F and G, they would retain both ϵ and disambiguations $d_F, d_G \in \mathcal{C}_S$.[7]

[7] There are also *vacuous* distinctions, in which the agent would jettison the disambiguations and solely retain the eliding concept. But those won't be important in what follows.

The ubiquity of pliant distinctions

There are two key signatures of pliant distinctions:

- *The Semantic Signature*: Thoughts featuring an eliding concept have a trivalent acceptability profile, e.g., FARHAD IS HEAVIER THAN THE FAN is neither wholly acceptable nor wholly unacceptable, but is *disambiguation-sensitive*.
  - Field (1974) advocated a supervaluationist semantics for these cases, but that semantics gets the wrong results for certain thoughts, e.g., HEAVINESS IS REALLY TWO THINGS.[8]
  - The important thing for my purposes is that the third value involves the elided F and G disagreeing with respect to truth.
- *The Logical Signature*: Disambiguations are *asymmetrically substitutable for* their eliding concepts.
  - Consider the entailment relations between:
    (H) Farhad is heavier than the fan.
    (M) Farhad has more mass than the fan.
    (W) Farhad has more weight than the fan.
  - (M)/(W) follow from (H), and the negations of (M)/(W) follow from the negation of (H), but (M) or (W) individually do not entail (H).
- These two signatures are common in philosophy and science, but this isn't obvious initially, because of *nonlexicalization* of the disambiguations:
  - A lexical item that expressed an eliding concept often gets recycled to express disambiguations too, with no separate lexical item for the disambiguations.
  - The recycling occurs with 'heaviness', even though its disambiguations *were* lexicalized:
    - There are no heavy objects in deep space. (WEIGHT)
    - Some black holes are heavier than a million suns. (MASS)[9]
    - Farhad is heavier than the fan. (HEAVINESS)

[8] See Frost-Arnold (2008) and Merlo (2017) for relevant discussion.

[9] Actually, 'weight' and its cognates can also be used to express MASS.

Now we can give some examples from philosophy:

- 'Consciousness'[10] - *Access* vs. *Phenomenal*

(E) I am conscious of the redness of the apple.
(D) Blindsight subjects are not conscious of what they see.

- 'Meaning'[11] - *Natural* vs. *Non-natural*

(E) The red light means that you should stop.
(D) Smoke means fire.

- 'Cause'[12] - *Productive* vs. *Counterfactual*

(E) The cigarettes caused her cancer.
(D) *(Bob's rock was guaranteed to break the window if Suzy's hadn't hit it first)* Suzy's throw caused the window to break.

- 'Reason'[13] - *Normative* vs. *Motivating*

(E) The reason I am vegetarian is to avoid contributing to animal suffering.
(D) They had no reason to bully him.

- 'Race'[14] - *Biological* vs. *Nonbiological*

(E) Maya Angelou's race was Black.
(D) Cesar Chavez's race was Hispanic.

- 'Probability'[15] - *Chance* vs. *Credence*

(E) *(Of a coin known to be fair)* The probability that the coin will land heads is .5.
(D) *(Of a biased coin which the evidence suggests is fair)* The probability that the coin will land heads is .5.

[10] From Block (1995).

[11] From Grice (1957).

[12] From Hall (2004).

[13] As discussed in Alvarez (2017).

[14] See Spencer (2019).

[15] Updated from Carnap (1945).

A corresponding list could be created for scientific terms:[16]

- Philosophers of science observe that scientific terms often get recycled to previously confused phenomena (without lexicalization).[17]
- But these expressions also give rise to unsettled occurrences that have the profile of elision.

These examples share an etiology: conflation of phenomena that stand in a systematic relation to one another. It turns out that this observation pertains to the next question: why draw a pliant distinction to begin with?

[16] For 'mass', see Field (1974). For 'gene', see Brigandt (2010). For 'hardness', see Wilson (2008). For 'hot', see Wiser (1995) and Carey (2009). For 'species' and 'metal', see Kitcher and Stanford (2000) and Leslie (2013).

[17] See LaPorte (2004), Wilson (2008), Leslie (2013), Taylor and Vickers (2017), Haueis (2024), and Visser (2025).

Why be pliant?

Starting point: if the chance of the distinction being relevant is low enough, and the cost of the resources for representing the distinction are high enough, then elision might be overall best.[18]

[18] This venerable idea traces to Rosch (1978). For recent relevant discussions, see Neufeld (forthcoming), Martínez (2024), and Shea (2024). As far as I know, no one has applied the familiar idea to elision.

- Analogy: a hospital labeling system and the background dispute about whether "Schmengen's disease" is one or two. The finer grained labeling will be less useful if:
  - Both versions of Schmengen's tend to occur together.
  - One version of Schmengen's is far more common than the other.
- Let A be a variable that has worlds as values and R a variable standing for a conceptual repertoire, with cells of a partition over the set of worlds as values.
- The worlds in a cell of R "agree" on how things are with respect to the repertoire.
- For example, suppose there are four worlds corresponding to the different atomic combinations of Fa and Ga.[19]
  - R_ϵ is trivalent: it lumps the worlds where exactly one of F or G hold to together but separates the other two worlds (this is the analog to elision).
  - R_d is quadrivalent, with each world occupying its own cell (this is the analog to disambiguation).
- The expected mutual information $I(A;R)$[20] is the average reduction in uncertainty one can expect about A from learning the value of R given a background probability distribution.
- $I(A;R_d) \geq I(A;R_\epsilon)$, but as the weighted uncertainty over mixed worlds falls, the difference between $I(A;R_d)$ and $I(A;R\epsilon)$ shrinks. This can happen for two reasons:
  - The weight over those worlds is low, like when both variants of Schmengen's tend to occur together.
  - The uncertainty over those worlds is low, like when one version of Schmengen's is much more common than the other.
- If we assume that there is a cost to disambiguation, then a trade-off between exploitable information and this cost will favor elision in the right circumstances.

Pliant distinctions involve possession of *both* the disambiguations *and* the eliding concept. If you have already paid the cost to retain the disambiguations, why would it be worth keeping the eliding concept?

- Disambiguation is *not* a cost on memory retention, but a cost on *deployment*:
  - For example, when people learn a new scientific theory, they do not eliminate their original theory but instead retain that theory and continue to use it in safe contexts.
  - This use of the original theory manifests in data like response times, activation of regions corresponding to inhibition (to suppress the original theory in contexts where that theory gets the wrong answer), and a regression to the original theory in conditions of cognitive load or degeneracy.[21]
  - Often the new scientific theories will draw distinctions that the original theory does not.
- If the background probability distributions change, and the change is easy to detect, then the cognizer will have reason to retain *both* R_ϵ and R_d, using them in the contexts where the distribution favors them.[22]

[19] That is, $w_1 = \{Fa, Ga\}$, $w_2 = \{Fa, \neg Ga\}$, $w_3 = \{\neg Fa, Ga\}$, and $w_4 = \{\neg Fa, \neg Ga\}$. The lumped/mixed worlds are w_2, w_3.

[20] $I(A;R) = H(A) - H(A \mid R)$, where $H(A)$ is the Shannon entropy of A and $H(A \mid R)$ the conditional entropy of A having observed R.

[21] A good overview of this literature is Shtulman and Lombrozo (2016).

[22] This story also explains how pliant distinctions might arise/persist even without conflation. For example, a new concept PLANET that elides the orthodox property and the newer property associated with the IAU definition can be rationalized in the same way even if no one ever confused these properties. Cf. Chalmers (2011), Egré and O'Madagain (2019).

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