FUZZINESS =: DEGREES ➜ CONTRADICTIONS

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The ideas here recorded may form part of a contradictorial gradualist view of fuzziness and the sorites paradox, though some need a reinterpretation. The fact that some author is on this list does not mean that he or she subscribes to the whole program.

PROBLEMS

How to describe the transition from F to not-F (Cooper, p. 261)
How many grains of sand are required to make a heap? (Brock, p. 46)
How much money do you need to be rich? (Burnyeat, p. 325)
Leibniz 1704: How few hairs a man can have without being bald? (Levey)

[PURPORTED] FACTS

Some terms apply as matters of degree (Grim, 1997, Section 1)
Datum explanandum: overwhelming inclination most of us have to assent to the Mj.Pr. (King, p. 22)

METHOD

Haa. 78: Explain why premiss given up, independently of its leading to paradox (in Van K. 99, p. 35)
How do we settle semantic disputes? Put metaphysics first (Devitt 1996a, pp. 48, 83-4)

MEANING

A term gets its meaning through being applied to paradigm cases, and then it is extended to other cases that do not differ from the paradigm in too many respects (Alston 1964, p. 89)
Platts: We grasp the use of a vague predicate through paradigm exemplars (in Peacocke, p. 123)
Meaningfulness of F does not depend on there being any sharp F/~F dichotomy (R. Engel, pp. 26, 37)
In order for an expression to be meaningful, an entity must be associated with it (in Luntley, p. 32)
Names acquire meaning independently of their use in sentences (in Luntley, p. 19)
If truth-bearers are sentences, states of affairs can be their meanings (David, Sect. 3)

TRUTH

To assert that a statement is true is just to assert the statement itself (Stoljar, [Introduction])
If a sentence says that something is so, it is T iff that thing is so (Andjelković and Williamson, 215)
If the truth value is a matter of degree, then existence itself must be a matter of degree (in Hel.90, p. 77)
"The cat is on the mat" describes the world as being some way (Glanzberg, 2003, p. 164)
To assign truth conditions to a sentence is to specify what the world must be like in order for the sentence to be true (Rayo, p. 10)
The truth of "a is bald" supervenes on the hair situation of *a* (Schiffer 1998, p. 208)
Generalization of Tarski Schema: "x is F" is true to degree d ↔ x is F to degree d (Grim 1997, Section 4)
The truth degree of "*Fa*" is the degree to which *a* belongs to the extension of *F* (Gottwald 2001, p. 25)

CLASSICAL LOGIC

CL is inadequate for inconsistent information. Amend CL (Besnard & Hunter, 9)

NEGATION

In a degrees of truth theory, the idea behind negation is that departing from definite truth is the same as approaching definite falsehood (Sainsbury and Williamson, p. 476)

Le complément A^C d'un ensemble flou A est tel qu' un élément x de X appartient d' autant plus à A^C qu' il appartient peu à A (Bouchon-Meunier 1995: 18)
I am not sure there is a single notion of negation (Grim, unpublished, Section 4)
To reject p is different from accepting the negation of p (Field 2003a, p. 4)
One should not reject something simply because its negation turns out to be true (Priest 1998b, p. 421)

METAPHYSICS
The transition from being to non being is gradual rather than abrupt (Sadegh-Zadeh, p. 7)
Dialetheists are against consistency as a global constrain on our metaphysics (Brown 2002b: 628)

FUZZINESS (so-called vagueness)
Graduality and vagueness are very different (R. Engel, p. 25)
Zadeh 1978: vagueness is not the same as fuzziness. A proposition is vague if it is fuzzy and insufficiently specified for a purpose (in Devos, pp. 56-7)
In English, 'vague' means something like "too general" (Brock, p. 49, n. 13)
There is a graceful degradation between situations to which a vague notion fully applies and situations to which it does not apply at all. There is a whole range of situations to which a vague notion partially applies. Such gradualness is an essential characteristic of vagueness (Dubois, Ostasiewicz, Prade, p. 27)
It is a range of things between those which are really F and those really not F (Horwich 2000a, p. 88)
It is gradual change in a parameter of degree (Wright, 2003, p. 91)
Central feature of vagueness: more-or-lessness (Sylvan& Hyde, p. 26)
The problem of vagueness is seen when we have a large number of objects which differ by only small degrees (Labov, p. 353)
Degree vagueness is lack of a precise cutoff point along some dimension (Alston 1964, p. 87)
It is certainly a feature of a vague predicate that the relevant cases are subject to an underlying comparative relation (Sainsbury and Wiliamson, p. 475)
It is a source of incoherence (Read 1995, p. 176)
Fuzziness begins where contradictions begin. Fuzzy sets arise when F overlaps non-F (Kos., pp. 23, 125)
It is under- and over-determinacy (Sylvan & Hyde, pp. 17-18)
The use of vague vocabulary is more over- than under-determined (Van Kerkhove 2003, p. 12)
It is a species of semantic overdetermination (Eklund 2001, pp. 363, 370, 373)
Ullman: It is due to lack of clear-cut bounds in the world (in Channell, p. 6)
Vagueness is susceptibility to a sorites series (Wright 2003c, p. 91)
It is not ambiguity: different meanings cannot be identified (Channell, pp. 34-5)
Un ensemble flou est introduit pour éviter les passages brusques et autoriser des éléments à appartenir partiellement à chaqu' un. Il permet de traiter: des catégories aux limites mal définies, des situations intermédiaires entre le tout et le rien, le passage progressif, graduel, d'une proprieté à une autre, des classes en évitant l'utilisation arbitraire de limites rigides; l' approximation d' une description prototypique (Bouchon-Meunier, pp. 9, 95)

PRINCIPLE OF EXCLUDED MIDDLE
The PEM is true (Weatherson2002b, p. 107)

BORDERLINE CASE (b.l.c.)
It is an object to which F applies only to some degree (Gottwald 2001, p. 25)
It is not homogeneous, but a matter of degree (in Read 2003, p. 6)
It is a sentence whose truth value is taken from]0, 1[(Weatherson 2002b, Ch. 9, p. 101)
For paradigm b.l.c, /Fa/ = /~Fa/ (in Sainsbury and Williamson, p. 476)

Lehrer: any coherent theory that does not lead to contradictory conclusions concerning the b.l.c. must distort our inconsistent ordinary usage (in Sorensen 1991b, p. 96)
Incoherentism: the group that believes that a is F and the group that believes that a is not F are both right but incomplete. The only one who captures the meaning of 'a' are those who affirm both parts of the inconsistency. Inconsistency is the price of complete meaning preservation (in Sorensen 1991b, p. 95)
It is one with respect to which "looking red" and "looking orange" are very much alike (Raf. 94, p. 53)
The application of F and not F is not excluded form b.l.c. Hence, the overlap (Black 1937: 35-36)

DEGREES
Jan Christiaan Smuts: «...round every luminous point... there is a gradual shading off into... obscurity. A "concept" is not merely its clear luminous center, but embraces a surrounding sphere of meaning... of smaller dimensions, in which the luminosity tails off and grows fainter until it disappears» (Kos., p. 138)
There are clear cases of red, of orange, and things of varying degrees of closeness to these 2 poles (Edgington 2001, p. 375)
Si x ne possède pas une propiété de façon absolue, on peut indiquer avec quel degré x la possède (Bouchon-Meunier, p. 10)
The meaning of "a is F" is paraphrased in terms of the amount to which a possesses F (Ken. 03a, p. 2)
Some attributes depend on metrical considerations (Woods 2000, p. 110)
Instances of "red" vary from more to less red (Cook, w.i.p.)
Nous disons souvent qu'un individu est "plus ou moins chauve" (P. Engel, p. 531)
Once something is a heap, it can still grow from a small heap to a bigger one (Bobzien, p. 227)
Cuantas más características de X-idad estén presentes, con cuanta más confianza aplicamos el término 'X' (Hospers,)
The meaning of the following three kinds of expressions involve measurement: a) those associated with measure phases; b) those that can appear in comparative constructions; c) those that can be modified by 'degree terms', like *very, how, much, so, too*, etc. (Kennedy, 2003a, p. 1)
Prototype Theory: instances of categories differ in the degree to which they fit the core meaning (Fuhrmann 1991, p. 4)
Fodor: The criteria of birdiness are satisfied in greater or lesser extent (in Channell, p. 12)
Fuzzy sets are nothing but the extensions of vague notions (Gottwald 2001, p. 424)
Fuzzy logic captures the intuition that the extensions of vague predicates fade off (in Eklund w.i.p., p. 3)
The theory of fuzzy truth values addresses the objection that it is counter intuitive that a sentence has a real valued truth value (in Priest 2003, p. 18, n. 10)
Gradable predicates invoke scalar structures as part of their semantics (Kennedy 2003b, p. 2)
Gradable adjectives map objects to scales (Kennedy 2001, p. 38)
A sentence with a fuzzy predicate must have degrees of truth (in Priest 2003, p. 16)
Se deben ontologizar los grados (Peña, Cumulativismo, Section 3.4)
x is more F than y iff y is more not-F than x (Kennedy 2001, p. 37)
The more representative of F an object is, the more users will use F to describe it (Ham. 00b, Sect. 3)
Degrees of truth account for absence of sudden jump from absolute truth to absolute falsehood (in Field, in Unger, 1979b, p. 130)
There are senses in which we speak in ordinary language of "degrees of truth" (Needle, Ch. 1, Sect. 1.3i)

SUPERVENIENCE OF DEGREES
Adding a single hair to a person makes her a little less bald (Grim 1997, Sect. 6)

As McGrath's distance from Sn. Fco. steadily decreased, "McGrath is far from Sn. Fco." became less and less adequate or accurate (King, p. 21)
As particles of sand are added to the small heap, the degree of truth of "the heap is small" decreases little by little (Dubois, Ostasiewicz, Prade, pp. 27-8)
Appartenance partielle ⇨ vérité partielle (Bouchon-Meunier, p. 117)
"Sn ⇨ n is not a heap" grows increasingly implausible with the increase in size of n (Rescher 01, p. 81)

Anti-MAXIMALISM
For something to be acceptable, it does not have to have truth value 1 (Priest 2003, p. 16)

CONTRADICTION
A fuzzy object is to some degree F, and to some degree not F (Kosko, pp. 46, and 155)
Bald/hirsute, short/tall... blend into one another (N. Smith 2005, Sect. 2.2)
Fuzzy region: ambivalent overlap between F & not F, where we are inclined to see the issue both ways (Rescher 2001, p. 77)
In the fringe, F is not incompatible with not-F (Black 1937, p. 39)
Fuzzy properties are such that, due to their gradual bounds, "p & not p" is not totally false (Dubois, Ostasiewicz, Prade, p. 34)
Allowing sets to have unsharp bounds causes an overlap between F and its complement (Ker. 99, p. 18)
Il y a des categories mal séparés qui se chevauchent partiellement (Bouchon-Meunier 1995: 162)
Aceptación de la mezcla (Peña, El cumulativismo, Section 3.4)
In the penumbra, it is common to say inconsistencies (Cooper, p. 260)
Speakers compromise between clashing linguistic tendencies when they describe paradoxical phenomena with oxymorons (Sorensen 1992, p. 169)
We are sometimes attracted to contradictions: it may seem appropriate to utter them (Graff 01b, p. 28)
Sainsbury: The naturalness of «It is and it isn't» as a response to the question whether a borderline case is F indicates that "p and not p" is not completely false (in Graff 2001b, p. 32)
Essential characteristic of a vague proposition: that a contradiction can be partially true (Mac. 76, p. 59)
Vagueness gives rise to truth value gluts (Hyde 1997, p. 649)
Wright: a vague sentence can be permissibly called true and false (according to Eklund, w.i.p, p. 3. Cfr. Wright 1994, p. 138)
Peirce: when vague predicates involved, p and not p may both be defensible (Hookway 91, pp.75, 70)
In the fringe area, it is possible to assert that the object is a cup ant that it is not a cup (Labov, p. 356)
The meanings of vague expressions are inconsistent (Eklund, forthcoming)
Gradual steps engender a contradiction (Read 1995, p. 173)
Fuzzy Logic: By small steps, we export the predicate to negative domain, resulting in a contradiction (in Pinkal 1995, pp. 159-60)
Observational predicates are paradoxical *if* they obey the principle that, if a is F, and b is indistinguishable from a, then b is F (Sainsbury and Williamson, pp. 468-69)
The point of a logic of vagueness is not to eschew incoherence but to insulate it (Horgan 1994a, p. 181)
The point of the approach is to accommodate contradictions, not to eliminate them (Prie. 95a, p. 65)
The rational person apportions her beliefs according to the evidence, and if evidence is for inconsistency, so be it (Priest 1998b, pp. 419-20)
There is no problem whatsoever in deriving an inconsistency (VanKerkhove & Vanackere, p. 409)

Contradictions can be more informative than any consistent revision of the theory. Remedying them could result in the loss of information and impoverishment of reasoning (Besnard & Hunter, p. 4)
The real world forces us to work with inconsistencies (Hunter, p. 33)
A dialectical logic can contain a contradiction and the LNC: p&~p&~(p&~p) (Routley and Meyer, p. 5)
Dialectical logic regards the real world as inconsistent (Routley and Meyer, pp. 10-11)

FUZZINESS IN THE WORLD
Vagueness is applicable to the world (Hyde 1997, p. 659)
We need a theory that accounts for vagueness in language in terms of vagueness in the world (N. Smith 2004, p. 219)
Fuzziness is a property of the phenomenon rather than a property attributed by the observer (Bil., p. 217)
There is continua in nature (Burns 1991, p. 8)

SORITES PARADOX
Matters of degree engender paradoxes (Rescher 2001, p. 87)
The falakros depends on a gradual variation (Black 1963, p. 2)
Cicero: The argument of little by little is «the method of proceeding by minute steps of gradual addition or withdrawal» (in Leib, p. 149, n. 2)
Le sorite s'engendre à partir d'énoncés contenant un prédicat marquant un degré ou une intensité. Il a une structure contradictoire (Godard-Wendling, p. 2427)
The argument of little by little proceeds by small transitions (Burnyeat, p. 318)
It arises because of continuity (Cooper, p. 267)
The reason why the sorites is generated: continua between clear F and not F (Wea. 02b, Ch. 4, p. 65)
All the ancient cases of 'proper' sorites arguments use numerical series (Bobzien, p. 227)
Any implicitly quantitative term gives rise to the paradox (Burnyeat, p. 318)
The sorites threatens with incoherence (Barnes 1982: 26)
The argument purports to show that certain predicates are incoherent (Burnyeat, p. 324)
Not only avoid the conclusion but also provide a treatment of degree sensitiveness (Peña, Comments)

SORITICAL SERIES
Soritical series gradually moves from a clear case of F to a clear case of not F (Cook, w.i.p.)
It is gradual change in a parameter of degree (Wright 2003c, p. 91)
Leibniz 1676: The change from one state to its opposite ca be effected by the smallest difference in measure (Levey)
Any pair of opposite properties can be linked by a series of pairs of only marginally different objects (in Wright 1975, pp. 333-34)
À partir d'un cas défini d'individu chauve, on peut passer, par une série continue de transitions à un individu non chauve. C'est ce passage graduel qui est caractéristique des prédicats vagues (P. Engel, pp. 534, 537)
It consists of gradually more and more F objects (Horwich 2000a, p. 83)

CONTINUOUS TRANSITIONS
The transition must be gradual (Cooper, p. 261)
Zadeh: in a fuzzy set the transition from membership to non-membership is gradual (in Channell, p. 200)
By gradations the hot becomes the cold. We cannot draw a bound because nature is continuous (Hospers, p. 40-41)
Erdman: A vague expression can be transduced to its opposite by continuous imperceptible transitions (in Pinkal 1995, p. 73)

Leibniz law of continuity: all change is jumpless (Ausín & Peña 2001)
Leibniz: essential differences are quantitative increases of some underlying property (Ausín & Peña 2001)
Allowing continuity of truth values can reflect continuity of heights determining degrees of tallness (Keefe & Smith, p. 40)
There is no discontinuity (Black 1963, p. 10)
Peirce's synechism stresses continuity in thought and nature (Hookway 1991, p. 81, n. 7)
Continua in nature ought to be reflected by continua in language (Needle, Ch. 1, Sect. 1.3, i)
There is no transition point, but a stretch (Cooper, p. 263)
We perceive the progressive extents [or degrees] but not the dichotomy assumed to mark the extension of the predicate (R. Engel, p. 30)

BOUNDARIES
Kamp 1981, and Soames: Similarity between two contiguous objects prevent the bounds from occurring between them (in Graff 2002c, p. 60)
When you look at 2 objects in a sorites series, you cannot find the bound there (Ken. 03b, p. 7, n. 3)
Fuzzy logic does not draw hard lines between opposites (Kosko, p. 126)
There is a determinate bound between clear and borderline cases (Heller 1996, p. 178)
No matter how the division is made, the progression of degrees persists. Being precisely cleft between F and not-F does not imply being not gradual (R. Engel, p. 25)
Any so called higher order vagueness is not really higher order vagueness (Heller 1990, p. 83)

MINIMAL DIFFERENCES (among adjacent members)
This is mistaken: Since any addition by one unit does not make any difference, any number of additions does not make any difference. Solution: all differences make a difference (Napoli, pp. 118-19)
No single grain makes a significant difference, but enough grains do (Edgington 1996, p. 302)
Dissimilarities are discountable, but cumulative (Woods 2000, p. 112)
For many-valued and fuzzy logic, one hair makes a very small difference (in Varzi 03c, Sect. [3])
There is a difference, tiny, minuscule, minute, but relevant (McGee & McLaughlin, p. 220)
Adjacent members are imperceptibly different but each is more F than its predecessor (Gol. 88, p. 449)
Goldman's Principle of good continuation: co-classify objects that differ only minutely (in Sor. 01, p. 30)
We want to treat like cases alike (Sorensen 2001, p. 44)
It is an injustice that indistinguishable cases be treated radically different (Edgington 2001, p. 374)
Insignificant difference in height cannot make a significant difference in tallness (N. Smith 2004, p. 166)
Fuzzy inference: a is F; a and b are approximately equal; then, b is more or less F (Sadegh-Zadeh, p. 8)

MAJOR PREMISS (Mj.Pr.)
Diogenes Laertius: ~(Fn/\~Fn+1) (Barnes1982: 27)
It can be accounted for by noting that in no instance is the consequent significantly less accurate than the antecedent (King, p. 22)
Premises stating no difference in colour between neighbours are T by construction (McG. & McL., p. 205)
Vagueness seems to commit us to Mj.Pr. (Keefe 2000, p. 8)
"If a deserves treatment F, and b does not differ significantly from a in features relevant to deserving F, then b deserves F". Sort of analytic truth, deriving from the meaning of 'deserve' (Burnyeat, pp. 328, 330) If there is an exact bound, there is no vagueness (Romerales 1999, p. 51; McGee & McLaughlin, p. 208)

MILD INDETERMINISM

Absolute PEM fails:

I deny that the blob is either definitely red or definitely not-red (Burgess 1998, p. 248)

The following principle stronger than bivalence is rejected: every proposition is either definitely true or definitely false (Edgington 1996, p. 310)

PRECISIFICATION

Fuzzy logic avoids the need for artificial precisification (in Haack 1996, p. 239)