

snippets

Issue 37 - December 2019
Special issue in honor of Uli Sauerland

Contents

1. Andreea C. Nicolae, Patrick D. Elliott, and Yasutada Sudo <i>Introduction</i>	1
2. Dorothy Ahn <i>ASL IX to locus as a modifier</i>	2
3. Artemis Alexiadou <i>Decomposing scalar approximatives in Greek</i>	4
4. Anna Alsop, Lucas Champollion, and Ioana Grosu <i>A problem for Fox's (2007) account of free choice disjunction</i>	7
5. Anton Benz and Nicole Gotzner <i>Quantifier irgendein and local implicature</i>	10
6. Jonathan David Bobaljik and Susi Wurmbrand <i>Fake indexicals, binding, and the PCC</i>	13
7. Brian Buccola and Emmanuel Chemla <i>Alternatives of disjunctions: when a disjunct contains the antecedent of a pronoun</i>	16
8. Luka Crnić and Brian Buccola <i>Scoping NPIs out of DPs</i>	19
9. Chris Cummins <i>Some contexts requiring precise number meanings</i>	22
10. Patrick D. Elliott and Paul Marty <i>Exactly one theory of multiplicity inferences</i>	24

11.	Anamaria Fălăuș and Andreea C. Nicolae	
	<i>Two coordinating particles are better than one: free choice items in Romanian</i>	27
12.	Danny Fox	
	<i>Individual concepts and narrow scope illusions</i>	30
13.	Danny Fox	
	<i>Degree concepts and narrow scope illusions</i>	33
14.	Nicole Gotzner	
	<i>Disjunction, conjunction, and exhaustivity</i>	35
15.	Martin Hackl	
	<i>On Haddock's puzzle and the role of presupposition in reference resolution</i>	37
16.	Andreas Haida	
	<i>Symmetry, density, and formal alternatives</i>	40
17.	Nina Haslinger and Viola Schmitt	
	<i>Strengthened disjunction or non-classical conjunction?</i>	43
18.	Fabian Heck and Anke Himmelreich	
	<i>Two observations about reconstruction</i>	46
19.	Aron Hirsch	
	<i>Modal adverbs and constraints on type-flexibility</i>	49
20.	Natalia Ivlieva and Alexander Podobryaev	
	<i>On variable agreement and scope reconstruction in Russian</i>	52
21.	Hadil Karawani	
	<i>The past is rewritten</i>	54
22.	Manfred Krifka and Fereshteh Modarresi	
	<i>Persian ezafe and proportional quantifiers</i>	56
23.	Paul Marty	
	<i>Maximize Presupposition! and presupposition satisfaction</i>	59
24.	Lisa Matthewson, Sihwei Chen, Marianne Huijismans, Marcin Morzycki, Daniel Reisinger, and Hotze Rullmann	
	<i>Restricting the English past tense</i>	61
25.	Clemens Mayr	
	<i>On a seemingly nonexistent cumulative reading</i>	65
26.	Marie-Christine Meyer	
	<i>Scalar Implicatures in complex contexts</i>	67
27.	Moreno Mitrović	
	<i>Null disjunction in disguise</i>	70
28.	Andreea C. Nicolae and Yasutada Sudo	
	<i>The exhaustive relevance of complex conjunctions</i>	72
29.	Rick Nouwen	
	<i>Scalar vagueness regulation and locative reference</i>	75

30.	Robert Pasternak	
	<i>Unifying partitive and adjective-modifying percent</i>	77
31.	Hazel Pearson and Frank Sode	
	<i>'Not in my wildest dreams': a part time minimizer?</i>	80
32.	Orin Percus	
	<i>Uli and our generation: some reminiscences</i>	82
33.	Jacopo Romoli	
	<i>Why them?</i>	84
34.	Fabienne Salfner	
	<i>The rise and fall of non-conservatives</i>	87
35.	Petra B. Schumacher	
	<i>Vagueness and context-sensitivity of absolute gradable adjectives</i>	90
36.	Stephanie Solt	
	<i>More or less an approximator</i>	93
37.	Giorgos Spathas	
	<i>Plural anaphoric reference and non-conservativity</i>	95
38.	Benjamin Spector	
	<i>An argument for the trivalent approach to presupposition projection</i>	97
39.	Bob van Tiel	
	<i>'The case against fuzzy logic revisited' revisited</i>	100
40.	Lyn Tieu	
	<i>A developmental asymmetry between the singular and plural</i>	103
41.	Tue Trinh	
	<i>A tense question</i>	106
42.	Hubert Truckenbrodt	
	<i>On remind-me presuppositions and embedded question acts</i>	108
43.	Michael Wagner	
	<i>Disjuncts must be mutually excludable</i>	111
44.	E. Cameron Wilson	
	<i>Constraints on non-conservative readings in English</i>	114
45.	Susi Wurmbrand	
	<i>Indexical shift meets ECM</i>	117

‘The case against fuzzy logic revisited’ revisited

Bob van Tiel · Leibniz-Zentrum Allgemeine Sprachwissenschaft

DOI: <http://dx.doi.org/10.7358/snip-2019-037-tiel>

Contradictions like *The circle is big and not big* are sometimes judged true if the circle is borderline big. This observation has been taken to show that classical logic is an inadequate tool for describing linguistic meaning, and that one should instead adopt a logic that allows for degrees of truth, e.g., fuzzy logic (Alxatib et al. 2013). According to fuzzy logic, the truth value of a conjunction is the lowest truth value of its conjuncts. Hence, if *The circle is big* and *The circle is not big* are true to degrees 0.6 and 0.4, *The circle is big and not big* is true to degree 0.4.

Sauerland (2011) tested whether fuzzy logic captures people’s intuitions about contradictions. Participants marked a value between 0 and 100 to rate the truth value of two sentences—abbreviated as A and B —that were borderline true, as well as their negations $\neg A$ and $\neg B$, the conjunctions $A \wedge \neg B$ and $B \wedge \neg A$, and the contradictions $A \wedge \neg A$ and $B \wedge \neg B$. Table 1 shows the mean truth ratings. Sauerland argues that the results speak against fuzzy logic because $B \wedge \neg A$ was rated significantly lower than $A \wedge \neg A$, even though the lowest-truth-value rule predicts comparable ratings. However, the low rating for $B \wedge \neg A$ is surprising on any account, especially since $A \wedge \neg B$ behaved as expected. Moreover, fuzzy logic almost perfectly predicts the ratings for contradictions. The results are thus not unequivocal.

A	B	$\neg A$	$\neg B$	$A \wedge \neg A$	$B \wedge \neg B$	$A \wedge \neg B$	$B \wedge \neg A$
45	42	46	47	43	47	43	26

Table 1: Mean truth ratings (Sauerland 2011)

To obtain more decisive evidence, we expanded on Sauerland’s paradigm to test a much wider range of borderline and non-borderline situations instead of just one. 288 participants on MTurk each saw a sentence and five displays. There were four types of sentences:

- (1) a. simple: *The circle is P*
- b. negative: *The circle is not P*
- c. conjunction: *The circle is P and not Q*
- d. contradiction: *The circle is P and not P*

P was varied between *red* and *big*; Q between *big* and *red*. Figure 1 shows an example display. Each display randomly varied the circle’s size and redness. For the purpose of analysis, we normalised these two dimensions. Participants had to indicate whether the sentence was true or false in each display. Thus, we tested a wide range of borderline and non-borderline situations.

Assuming that the proportion of ‘true’ responses approximates fuzzy truth (Hampton 2010), we fitted S-shaped membership functions to capture the fuzzy truth values of simple and negative sentences (Zadeh 1983). These functions are plotted in Figure 2 alongside the binned mean truth

values assigned to contradictions. Afterwards, we used the membership functions to determine the fuzzy truth values for conjunctions and contradictions based on the lowest-truth-value rule, and calculated how well these correlated with participants' judgements. The correlations were high for conjunctions ($r = .81$) but not for contradictions ($r = .24$). Fuzzy logic thus provides a satisfactory account of people's intuitions about conjunctions but not contradictions.



Figure 1: Example trial.

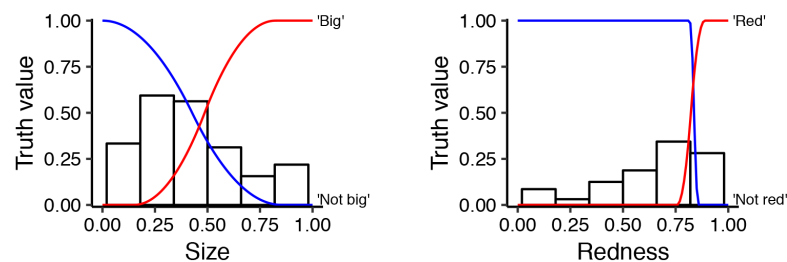


Figure 2: Binned mean truth values for *The circle is big and not big* (left) and *The circle is red and not red* (right) alongside membership functions.

References

- Alxatib, Sam, Peter Pagin, and Uli Sauerland. 2013. Acceptable contradictions: pragmatics or semantics? A reply to Cobreros et al. *Journal of Philosophical Logic* 42:619–634.
- Hampton, James A. 2010. Typicality, graded membership, and vagueness. *Cognitive Science* 31:355–384.
- Sauerland, Uli. 2011. The case against fuzzy logic revisited. In *Understanding Vagueness: Logical, Philosophical and Linguistic Perspectives*, ed. Petr Cintula, Christian G. Fermüller, Lluís Godo, and Petr Hájek, 185–198. London, United Kingdom: College.
- Zadeh, Lotfi. 1983. A computational approach to fuzzy quantifiers. *Computers & Mathematics with Applications* 9:149–184.

This research was funded by the German Research Council (grant DFG FR 3482/2-1, KR951/14-1, SA 925/17-1) within SPP 1727 (Xprag.de), which is gratefully acknowledged.

Bob van Tiel
bobvantiel@gmail.com
Leibniz-Zentrum Allgemeine Sprachwissenschaft
Schützenstrasse 18, 10117 Berlin
Germany