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Using the applicative to organize Ndebele verb semantic classes

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1. Introduction

*Organizing verbs into classes helps structure the lexicon particularly from a semantic perspective.
Levin (to appear): verb classes "are essential to characterizing regular patterns of verb behavior within and across languages."

Proposed in this paper – using the applicative as tool for organizing Ndebele verbs (and possibly verbs of other Bantu languages) into semantic classes.

2. Background

Various theories have been proposed for building verb semantic classes
*Proposal based on syntactic alternations - Levin 1993; Vázquez et al. 2000)
*Lexical Conceptual Structure - (Gruber 1967; Jackendoff 1983; 1990)
*Verb classes formed from semantic criteria such as sematic roles -
(Chafe 1970, Cook (1979), Longacre (1976), Foley and Van Valin (1984) and Van Valin (1993).

Problems with classes (Levin's 1993; Payne 1997; Hovav & Levin 1998; 2005)
*number (how many)
*grain size (how big or how small should a class be?)
*which approach to use?

Problems with sematic role labeling (Dowty 1991; Jackendoff 1987; Peterson 2007; Newmeyer 2010; Kittila et al. 2011; Srikumar 2013)
*definitions,
*number (how many?),
*overlap of roles
*arguments bearing more than one role
*internal organization (commonalities, animacy, hierarchies, etc)

(1) Definitions of semantic roles

	Semantic Role	Definition	Reference
a.	AGENT (A)	an animate and volitional perceived instigator/initiator of the action or event	Fillmore (1968) Payne (1997: 49)
b.	BENEFICIARY (B)	the participant for whose benefit the action expressed by the verb is performed	Saint-Dizier & Viegas (1995: 11), Palmer et al. (2010: 4)
c.	EXPERIENCER (E)	'the (animate) participant that is informed of something or that experiences perception, feeling or some psychological state expressed by the predicate' (e.g., first argument of love, second argument of annoy)	Saint-Dizier & Viegas (1995: 11) Lobner (2002: 113)
d.	GOAL (G)	the object towards which a movement is	Saint-Dizier & Viegas

		directed (e.g. second argument of reach, arrive), or the motivation of an action	(1995: 11)
e.	LOCATION (L)	the place in which the action or state described by the predicate takes place (e.g. second argument of fall)	Saint-Dizier & Viegas (1995: 11)
f.	MALEFICIARY (M)	the participant to whose detriment the action expressed by the verb is performed (the opposite of the beneficiary in that malefactive events affect the relevant participant adversely)	Kittilä & Zúñiga (2010: 5)
g.	PATIENT (P)	the participant undergoing the action and who is affected by it – usually undergoes a physical, visible change in state (e.g., second argument of kill, eat)	Saint-Dizier & Viegas (1995: 11) Palmer et al. (2010: 4) Payne (1997: 51)
h.	PURPOSE (Pur)	motivational goal of a predication	Frawley (1992: 227)
	REASON (R)	the thematic role of the argument that denotes the prior conditions of a predication / event or fact motivating a predication/ motivational source of a predication	Frawley (1992: 225)
i.	SOURCE (S)	'the object from which movement occurs' (e.g. second argument of leave)	Saint-Dizier & Viegas (1995: 11)
j.	STIMULUS (Sti)	the causer of an emotional reaction	Palmer et al. (2010: 13) Dawty (1991)
k.	THEME (T)	the entity that is moving or changing location, condition, or state or being in a given state or position (e.g. the second argument of give, the argument of walk and die)	Saint-Dizier & Viegas (1995:11) Palmer et al. (2010: 4)

3. Semantic Classes

3.1 Action processes

*Involve voluntary actor + distinct patient

(2) Roots: *bulal* 'kill', *tshay* 'hit', *gwaz* 'stab', *dubul* 'shoot' (*sik* 'cut', *limaz* 'injure', *qum 'chop'*, *dabul* 'tear'

a. *Isi-gebenga* *s-a-bulal-a* *umu-ntu*.
7-criminal 7-TNS-kill-a 1-person
A P
'The criminal killed a person'

b. *Isi-gebenga* *s-a-bulal-el-a*. *aba-ngane* *umu-ntu*.
7-criminal 7-TNS-kill-APP-a 2-friend 1-person
A B P
'The criminal killed the person for (his) friends'

c. *Isi-gebenga* *s-a-bulal-el-a*. *umu-ntu* *pha-ndle*
7-criminal 7-TNS-kill-APP-a 1-person 16-outside
A P L
'The criminal killed the person outside'

d. *Isi-gebenga* *s-a-bulal-el-a*. *umu-ntu* *imali*
7-criminal 7-TNS-kill-APP-a 1-person 9-money
A P R
'The criminal killed the person for money'

3.2 Verbs of emotion

*Usually take an EXPERIENCER subject and may have a STIMULUS object.

(3) Roots: Monovalent roots: *jabula* 'be happy', *thokoza* 'be happy', *thaba* 'be happy', *dan* 'be sad', -ethuka 'be startled', *zond* 'be angry', *esab* 'fear'

a. *U-mama* *w-a-jabul-a*
1a-mother 2-TNS-happy-a
E
'Mother was happy'

b. *U-Mama* *w-a-jabulela-el-a* *aba-ntwana.*
1a-mother 1a-TNS-happy-APP-a 2-child
E Sti / R
'Mother was happy for the children'

c. *U-mama* *w-e-jabul-el-a* *e-khaya.*
1a-mother 1a-TNS-happy-APP-a LOC-home
E L
'Mother was happy at home'

* STIMULUS can also be REASON IN (3).

(4) Divalent: *thand* 'love/like', *esab* 'fear', *zond* 'be angry'

a. *U-Themba* *w-a-thand-a* *in-tombi.*
1a-Themba 1a-TNS-love-a 9-young woman
E Sti
'Themba loved/fell in with the young woman'

b. *U-Themba* *w-a-thand-el-a* *in-tombi* *ubu-hle.*
1a-Themba 1a-TNS-love-APP-a 9- young woman 14-beauty
E Sti R
'Themba loved/fell in love with the young woman for (because of her) beauty'

c. *U-Themba* *w-a-thand-el-a* *in-tombi* *e-dolobh-eni.*
1a-Themba 1a-TNS-love-APP-a 9- young woman LOC-town-LOC
E Sti L
'Themba loved/fell in love with the young woman in town'

3.3 Verbs of cognition

*These are also verbs with an experiencer subject

(5) Roots: *khumbul* 'remember', *nakan* 'think', *khohlw* 'forget', *cabang* 'think', *fund* 'learn', *az* 'know'
(Definite null instantiation (DNI) possible)

a. *U-Themba* *w-a-khumbul-a* *isi-khwama.*
1a-Themba 1a-TNS-remember-a 7-bag
E Sti
'Themba remembered the bag'

b. *U-Themba* *w-a-khumbul-el-a* *u-baba* *isi-khwama.*
1a-Themba 1a-TNS-remember-APP-a 1a-father 7-bag
E B Sti
'Themba rememdered the bag for father'

c. *U-Themba* *w-a-khumbul-el-a* *isi-khwama* *e-sitolo*.
1a-Themba 1a-TNS-remember-APP-a 7-bag 7-bag LOC-store
E Sti L
'Themba remembered the bag at the store/when he got to the store'

d. *U-Themba* *w-a-khumbul-el-a* *isi-khwama* *i-mali*
1a-Themba 1a-TNS-remember-APP-a 7-bag 7-bag 9-money
E Sti R
'Themba remembered the bag because of the money'

*The beneficiary separates (5) from (4).

*Most of the roots (or root+el) in this class are associated with other meanings e.g. *fund* 'read', *cabang-el* 'suspect', *nakan-el* 'suspect', *khumbul-el* 'suspect', *az-el* 'know what someone has or is thinking before being told'.

3.4 Utterance verbs

(6) Monovalent roots: *nyenyez* 'whisper', *ngungun* 'murmur', *khulum* 'speak', *memez* 'shout', *xox* 'converse/chat/discuss', *hlabel* 'sing', *cul* 'sing'

a. *U-Sipho* *w-a-nyenyez-a*.
1a-Sipho 1a-TNS-whisper-a
A
'Sipho whispered'

b. *u-Sipho* *w-a-nyenyez-el-a* *in-duna*.
1a-Sipho 1a-TNS-whisper-APP-a 9-chief
A B
'Sipho whispered for the chief'

c. *u-Sipho* *w-a- nyenyez -el-a* *in-duna*.
1a-Sipho 1a-TNS- whisper-APP-a 9-chief
A G
'Sipho whispered to the chief'

d. *u-Sipho* *w-a- nyenyez -el-a* *pha-ndle*
1a-Sipho 1a-TNS-whisper-APP-a 15-outside
A L
'Sipho whispered outside'

e. *u-Sipho* *w-a- nyenyez-el-a* *uku-hlonipha*.
1a-Sipho 1a-TNS- whisper -a 15-respect
A R
'Sipho whispered for (to show) respect'

*First two roots are good representatives of the sub-class. Other roots can also be divalent.

(7) Divalent roots: *tshel* 'tell', *buz* 'ask', *phendul* 'reply', *memez* 'shout', *hlabel* 'sing', *cul* 'sing', *khulum* 'speak', (*biz* 'call')

a. *Aba-fana* *ba-za-tshel-a*. *u-baba*.
2-boy 2-TNS-tell-a 1a-father.
A G
'The boys will tell father'

b. *Aba-fana* *ba-za-tshel-el-a* *induna* *u-baba*.
2-boy 1a-TNS-tell-APP-a 9-chief 1a-father
A B G
'The boys will tell father for the chief'

c. *Aba-fana* *ba-za- tshel-el-a.* *u-baba* *pha-ndle*
2-boy 1a-TNS- tell-APP-a 1a-father 16-outside
A G L
'The boys will tell father outside'

d. *Aba-fana* *ba-za- tshel-el-a.* *u-baba* *uku-hlonipha*
2-boy 2-TNS- tell-APP-a 1a-father 15-respect
A G R
'The boys will tell father for (to show) respect'

*The root biz 'call' has another argument frame (8e).

(8) Root: *biz* 'call'

a. *Aba-fana* *ba-za-biz-a.* *u-baba.*
2-boy 2-TNS-call-a 1a-father.
A G
'The boys will call father'

b. *Aba-fana* *ba-za-biz-el-a* *induna* *u-baba.*
2-boy 1a-TNS-call-APP-a 9-chief 1a-father
A B G
'The boys will call father for the chief'

c. *Aba-fana* *ba-za-biz-el-a.* *u-baba* *pha-ndle*
2-boy 1a-TNS- call-APP-a 1a-father 16-outside
A G L
'The boys will tell father (while) outside'

d. *Aba-fana* *ba-za-biz-el-a* *u-baba* *uku-hlonipha*
2-boy 2-TNS- call-APP-a 1a-father 15-respect
A G R
'The boys will call father for (to show) respect'

e. *Aba-fana* *ba-za-biz-el-a.* *u-baba* *pha-ndle*
2-boy 1a-TNS- call-APP-a 1a-father 16-outside
A T G
'The boys will call father (to the) outside'

*Father becomes the THEME, not the GOAL. When someone is called s/he usually comes (+motion)

*Applicativized stems of some verbs of surface contact through motion have the argument frame ATG (*fuq* 'push', *dons* 'pull', *thanyel* 'sweep', *esul* 'wipe', *hway* 'scratch'). *Biz* 'call', though does not seem to be part of this class.

3.5 (Static) Position verbs

*Describe static position of an object

(9) Monovalent Roots: *guq* 'kneel', *quth* 'crouch', qotsham 'squat', *cambalal* 'lie', *m* 'stand', *hlal* 'sit', (*leng* 'hang')

a. *U-Sipho* *w-a-guq-a.*
1a-Sipho 1a-TNS-kneel-a
A
'Sipho kneelt'

b. *U-Sipho* *w-a-guq-el-a* *in-duna*.
1a-Sipho 1a-TNS-kneel-APP-a 9-chief
A B
'Sipho kneelt for the chief'

c. *U-Sipho* *w-a-guq-el-a* *pha-ndle*
1a-Sipho 1a-TNS-kneel-APP-a 15-outside
A L
'Sipho kneelt outside'

d. *U-Sipho* *w-a-guq-el-a* *uku-hlonipha*.
1a-Sipho 1a-TNS-kneel-APP-a 15-respect
A R
'Sipho kneelt for (to show) respect'

First 3 roots are good representatives of the class.
hlal sit also means 'live, stay'.
m 'stand' also means 'stop, wait'
leng 'hang' – probably not in this class as it also takes a GOAL or has dual membership
-also implies 'dangle'
Sipho is in control as an AGENT – acting on volition.

* *hlal* can also be viewed as divalent and can take a locative or nominal object.

(10) Divalent Root: *hlal* 'sit'

a. *U-Sipho* *w-a-hlal-a* *pha-nsi*.
1a-Sipho 1a-TNS-sit-a L
A
'Sipho sat down'

b. *U-Sipho* *w-a-hlal-el-a* *in-duna* *pha-nsi*.
1a-Sipho 1a-TNS-sit-APP-a 9-chief
A B L
'Sipho sat down for the chief'

c. *U-Sipho* *w-a-hlal-el-a* *pha-nsi* *uku-hlonipha*. / *uku-hlonipha pha-nsi)*
1a-Sipho 1a-TNS-sit-APP-a 15-down 15-respect 15-respect 15-down
A L R / R L
'Sipho sat down for (to show) respect'

* *-el* introduces only B and R

(11) Divalent Root: *hlal* 'sit' (*isitaba* = noun for sitting with crossed legs)

a. *U-Sipho* *w-a-hlal-a* *isi-taba*.
1a-Sipho 1a-TNS-sit-a T
A
'Sipho sat down'

b. *U-Sipho* *w-a-hlal-el-a* *in-duna* *isi-taba*.
1a-Sipho 1a-TNS-sit-APP-a 9-chief 7-sitting with crossed legs
A B T
'Sipho sat *isitaba* for the chief'

c. *U-Sipho* *w-a-hlal-el-a* *isi-taba* *uku-hlonipha*. / *uku-hlonipha isi-taba)*
1a-Sipho 1a-TNS-sit-APP-a 15-sitting… *15-respect* *15-respect* *7-sitting…*
A T R / R T
'Sipho sat *isitaba* for (to show) respect'

d. *U-Sipho* *w-a-hlal-el-a* *isi-taba* *pha-ndle*.
1a-Sipho 1a-TNS-sit-APP-a 9-chief 16-outside
A T L
'Sipho sat *isitaba* outside'

* *-el* introduces B, R and L as in (9)

(12) Root *leng* 'hang/dangle'

a. *U-Sipho* *w-a-leng-a*.
1a-Sipho 1a-TNS-hang-a
A/T
'Sipho hung'

b. *u-Sipho* *w-a-leng-el-a* *in-duna*.
1a-Sipho 1a-TNS-hang-APP-a 9-chief
A/T B
'Sipho hung for the chief'

c. *u-Sipho* *w-a-leng-el-a* *pha-ndle*
1a-Sipho 1a-TNS-hang-APP-a 15-outside
A/T L
'Sipho hung outside'

d. *u-Sipho* *w-a-leng-el-a* *uku-hlonipha*.
1a-Sipho 1a-TNS-hang-APP-a 15-respect
A/T R
'Sipho hung for (to show) respect'

e. *u-Sipho* *w-a-leng-el-a* *pha-ndle*
1a-Sipho 1a-TNS-hang-a 15-outside
T G
'Sipho hung (towards/to the) outside'

Compare c. & e. (TG argument frame associated with verbs of motion)
Sipho may not be in control as an Agent (→ Theme) – not necessarily acting on volition.

Posture roots: *leng* 'hang', *khotham* 'bend', *gungubal* 'slump', *eyam* 'lean', *tshek* 'slant'
The applicative shows that in Ndebele these form a different class from **(Static) Position verbs** [(12) vs (9-11)]

Conclusion
*Argument frames associated with the applicative can be used to classify verbs as each class is associated with specific ones.

- Action processes: A**B**P AP**L** AP**R**
- Verbs of emotion - Monovalent: E**Sti/R** E**L** Divalent: ESti**R** ESti **L**
- Verbs of cognition: E**B**Sti ESti**L** ESti**R**
- Utterance verbs - Monovalent: A**B** A**G** A**L** A**R** Divalent: A**B**G AG**L** AG**R**
- (Static) Position verbs - Monovalent: A**B** A**L** A**R** Divalent: A**B**L AL**R**/A**R**L
A**B**T AT**R**/A**R**T AT**L**

* Grain size issues for classes may be resolved by using the applicative in Bantu.

* The number of semantic classes in a given Bantu language may also be determined by the applicative.

References

Chafe, Wallace L. 1970. *Meaning and the structure of language*. Chicago: University of Chicago Press.

Cook, W.A. 1979. *Case Grammar: development of the Matrix Model (1979-1978)*. Georgetown University Press.

Dowty, David. 1991. Thematic proto roles and argument selection. *Language* 67(3): 547- 619.

Fillmore, C.J. 1968. The case for case. In Bach, E. and Harms, R.T. (eds.), *Universals in linguistic theory*, 1-88. New York: Holt, Rinehart and Winston.

Foley, William A. & Van Valin, Jr., Robert D. 1984. *Functional syntax and universal grammar*. Cambridge: Cambridge University Press

Frawley, William.1992. *Linguistic Semantics*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers.

Gruber, J. 1967. *Studies in lexical relations*, MIT doctoral dissertation and in *Lexical structures in syntrax and semantics*, North Holland (1976).

Hovav, Malka Rappaport. & Levin, Beth. 1998. Building verb meanings. In Butt, Miriam & Geuder, Wilhelm (eds.), *The Projection of Arguments: Lexical and compositional factors*, 97-134. Stanford, CA: CSLI Publications.

Jackendoff, R. 1972. *Semantic interpretation in Generative Grammar*, Cambridge: MIT Press.

Jackendoff, R.S. 1976. Toward an explanatory semantic representation, *Linguistic Inquiry 7 (1)*: 89-150.

Jackendoff, R. S. 1983. *Semantics and cognition*. Cambridge, Mass.: The MIT Press

Jackendoff, R. 1987. The status of thematic relations in linguistic theory, *Linguistic Inquiry 18 (3)*: 369-411.

Jackendoff, R. S. 1990. *Semantic structures*. Cambridge, Mass: The MIT Press.

Kittila, Seppo; Katja, Vasti & Ylikoski, Jussi. 2011. Introduction to case animacy and semantic roles. In Kittila, Seppo, Katja, Vasti & Ylikoski, Jussi (eds.), *Case animacy and semantic roles, 1-28*. Amsterdam, NLD: John Benjamins Publishing Company.

Kittilä, Seppo & Zúñiga, Fernando. 2010. Introduction. Benefaction and malefaction from a cross-linguistic perspective. In Zuniga, F. & Kiittila, S (eds.), *Benefactives and malefactives. Typological Perspectives and Case Studies*, 1-28. Amsterdam/Philadelphia: John Benjamins Publishing Company.

Levin, B. (to appear) Verb classes within and across languages. In Comrie, B. & Malchukov, A (eds.), *Valency classes: A comparative handbook*. Berlin: De Gruyter Mouton.

Levin, Beth. 1993. *English verb classes and alternations: a preliminary investigation*, Chicago: The University of Chicago Press.

Levin, Beth & Rappaport Hovav, Malka. 2005. *Argument realization*. Cambridge: Cambridge University Press.

Löbner, Sebastian. 2002. *Understanding Semantics*. New York: Arnold Publishers & Oxford University Press.

Longacre, R. E. 1976. *An anatomy of speech notions.* Peter de Ridder Press.

Newmeyer, Frederick. 2010. On comparative concepts and descriptive categories: A reply to Haspelmath. *Language 86(3)*: 688-695.

Palmer, Martha., Gildea, Daniel & Xue, Nianwen. 2010. *Semantic Role Labeling*. Morgan & Claypool.

Payne, Thomas E. 1997. *Describing Morphosyntax: A Guide for Field Linguists*. Cambridge: Cambridge University Press.

Peterson, David A. 2007. *Applicative constructions*. Oxford: Oxford University Press.

Rappaport Hovav, Malka & Levin, Beth. 1998. Building verb meanings. In Butt, Miriam & Geuder, Wilhelm (eds.), *The Projection of Arguments: Lexical and Compositional Factors,* 97-134. Stanford, CA: CSLI Publications.

Saint-Dizier, Patric & Viegas, Evelyne. 1995. An introduction to lexical semantics from a linguistic and a psycholinguistic perspective. In Saint-Dizier, Patric & Viegas, Evelyne (eds.), *Computational lexical semantics*, 1-29. Cambridge: Cambridge University Press.

Schadeberg, T. C. 2003. Derivation. In Nurse, D & Philippson, G (eds.), *The Bantu languages (Routledge Language Family Series)*, 71-89. London: Routledge.

Srikumar, Vivek. 2013. The semantics of role labeling. Unpublished dissertation. University of Illinois at Urbana-Champaign.

Van Valin, R. D. 1993. A synopsis of role and reference grammar. In Van Valin, R. D. (ed.), *Advances in role and reference grammar*, 1-164. Amsterdam: John Benjamins Publishing Company.

Vázquez, Gloria., Fernández, Ana., Castellón, Irene. & Martí, M. Antonia. 2000. *Clasificación Verbal: Alternancias de Diátesis*. Number 3 in Quaderns de Sin- tagma. Universitat de Lleida.