

## Supplemental Material

### Practical issues in developing semantic frameworks for the analysis of verbal fluency data:

#### A Norwegian data case study

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Norwegian	English	Norwegian	English	Norwegian	English	Norwegian	English	Norwegian	English	Norwegian	English
abbor	perch	fisk	fish	humle	bumblebee	løve	lion	pinnedyr	praying mantis	snegle	snail
albatross	albatross	fisker	fish	hummer	lobster	løvsanger	willow warbler	pinnsvin	hedgehog	snøleopard	snow leopard
alke	razorbills	fjesing	greater weaver	hund	dog	lus	lice	ponni	pony	snømus	least weasel
alligator	alligator	flaggermus	bat	hval	whale	lyr	pollack	ponny	pony	so	NA
alpakka	alpaca	flamingo	flamingo	hvalross	walrus	måke	seagull	præriehund	prairie dog	sommerfugl	butterfly
and	duck	flått	tick	hyene	hyena	makrell	mackerel	puma	puma	spekkhogger	orca
antilope	antelope	flodhest	hippopotamus	iguana	iguana	måltrost	song thrush	pungrotte	opossum	spurv	sparrow
ape	monkey	flue	fly	ilder	ferrets	mår	marten	rådyr	deer	stær	starling
apekatt	monkey	flyndre	flounder	insekt	insect	marekatt	lemur	ravn	raven	steinbit	catfish
aure	trout	føll	foal	insekter	insects	marihøne	ladybug	rein	reindeer	steinbuk	ibex
bamse	teddy bear	frosk	frog	isbjørn	polar bear	mark	worm	reinsdyr	reindeer	stinkdyr	skunk
bavian	baboon	fugl	bird	jaguar	jaguar	mårkatt	NA	reke	shrimp	storfe	cattle
beltedyr	armadillos	fuglehund	hunting dog	jerv	wolverine	marsvin	guinea pig	reker	shrimp	stork	stork
bever	beaver	fugler	birds	kakerlakk	cockroach	maur	ants	reptil	reptile	struts	ostrich
bie	bee	gås	goose	kalkun	turkey	maursluker	anteater	rev	red fox	sugge	NA
bikkje	dog	gaselle	gazelle	kalv	calf	meis	titmouse	rote	NA	svale	swallow
bille	beetle	gaupe	lynx	kamel	camel	meitemark	earth-worm	rotte	rat	svane	swan
binne	female bear	geit	goat	kameleon	chameleon	menneske	human	rotter	rats	svartbjørn	black bear
bison	bison	geiter	goats	kanadagjess	Canadian geese	mink	mink	rottweiler	rottweiler	svin	swine
bjørn	bear	gepard	cheetah	kanarifugl	canary	moskus	musk	røye	char	tarantell	tarantula
blåhval	blue whale	giraff	giraffe	kanin	rabbit	moskusokse	musk ox	røyskatt	weasel	tarantella	tarantula
blekksprut	octopus	gjess	geese	katt	cat	muldvarp	mole	rype	grouse	tege	bug
bøffel	buffalo	gjøk	cuckoo	katter	cats	muldyr	mule	sabeltann	saber	tiger	tiger
bokfink	chaffinch	gnu	gnu	kenguru	kangaroo	murmeldyr	marmot	salamander	salamander	tiur	capercaillie
brunbjørn	brown bear	gorilla	gorilla	kjøttmeis	great tit	mus	mice	sau	sheep	torsk	cod
chihuahua	chihuahua	gresshoppe	grasshopper	koala	koala	mygg	mosquito	sebra	zebra	trost	thrush
chinchilla	chinchilla	grevling	badger	koalabjørn	koala bear	neshorn	rhinoceros	sei	pollock/coalfish	tusenbein	millipede
coyote	coyote	gribb	vulture	kolibri	hummingbird	nise	porpoise	sel	seal	tyr	ox
dådyr	fallow deer	gris	pig	krabbe	crab	øgle	lizard	sik	whitefish	uer	redfish
delfin	dolphin	griser	pigs	kråke	crow	okse	ox	sild	herring	ugle	owl
dingo	dingo	grizzly	grizzly	kreps	crayfish	orangutang	orangutan	simle	doe	ulv	wolf
dinosaur	dinosaur	grizzlybjørn	grizzly bear	krokodille	crocodile	orm	snake	sisik	linnet	undulat	parakeet
dompap	bullfinch	gullfisk	goldfish	ku	cow	ørn	eagle	sjakal	jackal	vånd	water vole
dovendyr	sloth	hai	shark	kylling	chicken	ørret	trout	sjimpanse	chimpanzee	vannbøffel	water buffalo
dromedar	dromedary	hakkespett	woodpecker	kyr	cows	orrhane	black grouse	sjiraff	giraffe	vaskebjørn	raccoons
due	pigeon	hamster	hamster	labrador	labrador	oter	otter	sjøhest	seahorse	veps	wasp
edderkopp	spider	hane	rooster	laks	salmon	padde	toad	sjøløve	sea lion	villsvin	boar
ekorn	squirrel	hare	hare	lam	lamb	påfugl	peacock	sjøstjerne	starfish	vortesvin	warthog
elefant	elephant	hauk	hawk	lama	lama	pal	NA	skarv	cormorants		
elg	moose	hest	horse	lamm	NA	panda	panda	skilpadde	turtle		
emu	emu	hjort	deer	larve	larva	panter	panther	skjære	magpie		
esel	donkey	hoggorm	viper	lemen	lemming	papegøye	parrot	skogsfugl	grouse		
falk	falcon	høne	hen	lemmen	NA	pelikan	pelican	slange	snake		
fasan	pheasant	høner	hens	leopard	leopard	piggvar	turbot	smågnagere	rodents		
firfisle	lizard	høns	hens	linerle	wagtail	pingvin	penguin	snabeldyr	Proboscidea		

Table S1. 263 Animals in semantic space. Norwegian and English

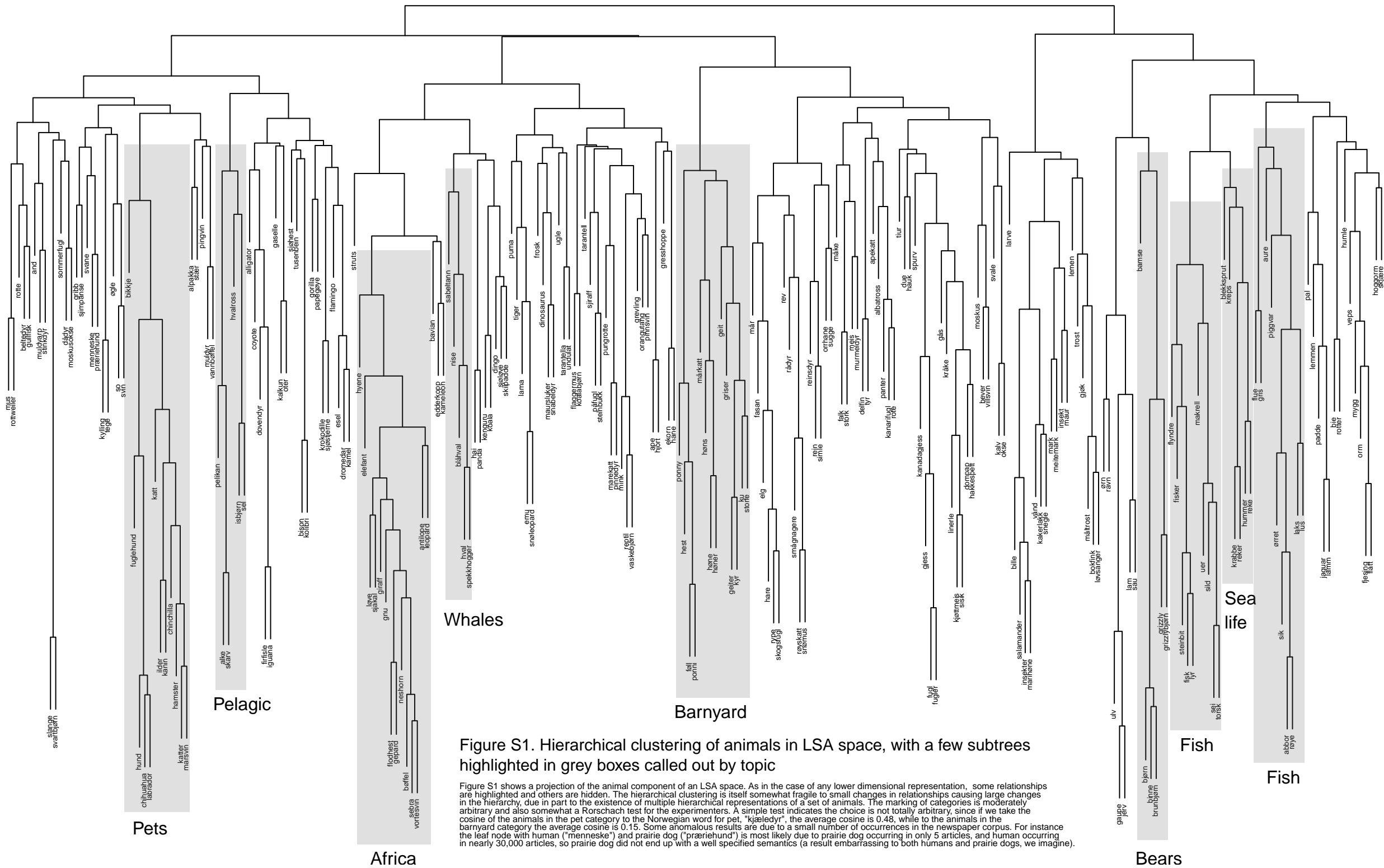


Figure S1. Hierarchical clustering of animals in LSA space, with a few subtrees highlighted in grey boxes called out by topic

Figure S1 shows a projection of the animal component of an LSA space. As in the case of any lower dimensional representation, some relationships are highlighted and others are hidden. The hierarchical clustering is itself somewhat fragile to small changes in relationships causing large changes in the hierarchy, due in part to the existence of multiple hierarchical representations of a set of animals. The marking of categories is moderately arbitrary and also somewhat a Rorschach test for the experimenters. A simple test indicates the choice is not totally arbitrary, since if we take the cosine of the animals in the pet category to the Norwegian word for pet, "kjeledyr", the average cosine is 0.48, while to the animals in the barnyard category the average cosine is 0.15. Some anomalous results are due to a small number of occurrences in the newspaper corpus. For instance the leaf node with human ("menneske") and prairie dog ("præriehund") is most likely due to prairie dog occurring in only 5 articles, and human occurring in nearly 30,000 articles, so prairie dog did not end up with a well specified semantics (a result embarrassing to both humans and prairie dogs, we imagine).