



Variability of Sign Use in Chimpanzees Before and After Relocation

Kailie Dombrasusky¹, Charlotte Hings², Mary Lee Jensvold^{1, 3}, Heidi Shaw^{1, 3}
¹Central Washington University, ²McGill University, ³Friends of Washoe



Introduction

Five chimpanzees lived at the Chimpanzee and Human Communication Institute (CHCI) from 1980 until 2013. Washoe, Moja, Tatu and Dar learned American Sign Language (ASL) during their early years living under cross-fostering conditions¹. Loulis learned his signs from the other chimpanzees². CHCI closed in 2013 and the two remaining chimpanzees, Tatu and Loulis, relocated to the Fauna Foundation Sanctuary where they live today and still engage in daily signed conversations with familiar caregivers. At both locations caregivers used ASL with the chimpanzees, as they were reliable for recording signs and responsible for maintaining daily records of the chimpanzees' signs on Sign Checklists³. This study used Sign Checklists to compare the chimpanzees' signing at the two locations.

Methods and Materials

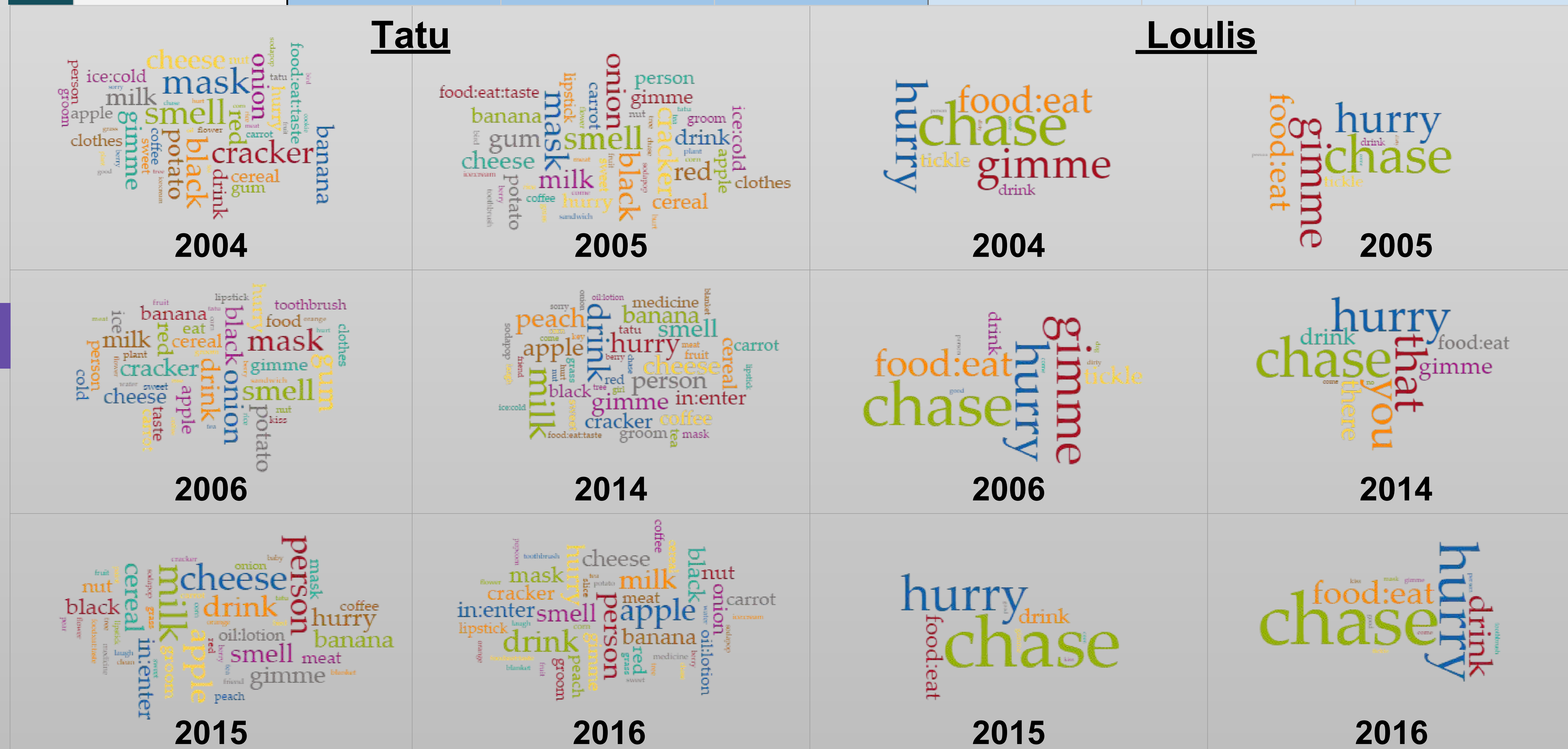
- We selected Sign Checklists from 2004-2006 (CHCI) and 2014-2016 (Fauna Foundation).
- We were interested in the number of different signs each chimpanzee signed in a day, rather than the amount of signing a chimpanzee engaged in. To measure variability of sign frequency for each year, we calculated the mean number of different signs each chimpanzee made in a day, and the range and sum of signs recorded on each Sign Checklist for each year
- We generated word clouds with Voyant Tools software (<http://voyant-tools.org/>)

Conclusions and Discussion

- Range of signs at CHCI and at Fauna Foundation were similar with some overlap (Table 1).
- Mean number of signs per day (\bar{x}) was similar between the two locations although slightly lower at Fauna (Table 1).
- Total numbers of signs (Σ) were lower at Fauna. Some caregivers at Fauna Foundation had also been caregivers at CHCI, where they were required to be reliable observers. There were days at Fauna when no observer-caregiver was present and instead only non-signing staff, thus no data was recorded.
- High frequency signs changed some due to differences in the environment. For example, Tatu signed CRACKER more often at CHCI where the chimpanzees ate monkey chow more often than at Fauna Foundation. After moving to Fauna, MILK became a high frequency sign because milk was served more often. Loulis used indexical signs, e.g. THAT, more frequently in 2014 when he was around more non-signers than all signers at CHCI.

Results Table 1

	CHCI				Fauna Foundation		
	Year	2004	2005	2006	2014	2015	2016
Tatu	Range	1 - 42	2 - 40	1 - 41	1 - 58	1 - 33	1 - 32
	\bar{x}	18	20	21	16	12	14
	Σ	6580	7388	7573	4404	3208	3446
Loulis	Range	1 - 10	1 - 9	1 - 12	1 - 12	1 - 8	1 - 9
	\bar{x}	4	5	5	4	4	4
	Σ	1576	1659	1691	1004	736	744



References

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