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Appendix A

LIST OF PUBLICATIONS

The work mentioned in this thesis pertains to the following peer-reviewed papers:

SCOPUS INDEXED JOURNAL PUBLISHED PAPERS

1. **Dwivedi, V.**, Ghosh, S. (2022). Classification of Hindi Compound Nouns Using Machine Learning. SN Computer Science, 3(1), 1-5.
2. **Dwivedi, V.**, Ghosh, S. (2023). Knowledge Representation in Generative Lexicon: Exploiting Qualia Structure for Compound Noun Interpretation. International Journal of Knowledge and Learning.(ACCEPTED)

SCOPUS INDEXED JOURNAL COMMUNICATED PAPERS

3. Dwivedi, V., Ghosh, S. "Semantic Relations Classification in Hindi Compound Nouns using Embeddings", INFORMATICA Journal, UNDER REVISION

4. Dwivedi, V., Ghosh, S. "Generative Lexicon as a Knowledge base for Compound Noun Interpretation", ACM Transactions on Asian and Low-Resource Language Information Processing, UNDER REVIEW

Appendix B

HINDI HEALTH COMPOUND NOUN DATA

The following is the list of compound noun extracted from Hindi Health domain corpus. The compound nouns are annotated with semantic relation set and the frequency distribution of semantic relations is also provided in the list.

Appendix B. HINDI HEALTH COMPOUND NOUN DATA

Compound Nouns	nantic_Relatio	Relation	Frequency
प्रसार दर	measure of	Measure_of	14
मूल्य दर	measure of	Lexicalized	25
लैसाजोखा	coulative	Copulative	2
आयुर्वर्मा	measure	TYPE-of	16
एच.आई.वी. टी.बी.	lexicalised	CAUSE	7
क्षयरोग	TYPE of	Location	20
एड्स संक्रमण	cause	Purpose	28
भूमध्य रेखा	location	Topic	21
डिगडुखार	TYPE of	Occupied by	1
विश्ववितरण	location	Change	3
वेलकम ट्रस्ट	lexicalised	Object	14
मलेरियाएटलस परियोजना	Purpose topic	Time	3
खरीद क्षमता	topic	Activity	6
स्वास्थ्य व्यय	Purpose	Person who st	3
जन स्वास्थ्य बजट	Purpose Purpose	Reference	3
रोगी विभाग	occupied by	Collection	6
नवंबर माह	lexicalised	Possessor-po	2
सहायता राशि	Purpose	Property	6
रक्तविनाश	change	Made of	5
पी. विदेक्स	lexicalised	Source/instru	3
पी.ओ.वेल	lexicalised		200
कालापानी बुखार	TYPE of		
हाथपांव	coulative		
टीका परीक्षणों	objectactivity		
जन्म भार	measure of, time		
मलेरिया नियंत्रण	object activity		
एनोफिलीज मच्छर	TYPE of		
मलेरिया संक्रमण	cause		
विश्व स्वास्थ्य संगठन	Purpose Purpose		
प्रजनन स्थल	Purpose		
चेचक उन्मूलन	objectactivity		
विश्वस्तर	measure of		

FIGURE B.1: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix B. HINDI HEALTH COMPOUND NOUN DATA

अनुसंधान कर्ता		person who study	
मानव जनसंख्या		measure of	
मलेरिया परजीवी		cause	
प्रतिरक्षात्मक		Purpose	
रक्त कोशिका		location	
रक्त वाहिकाओं		property	
वलय रूप		reference	
प्लास्मोडियमगण		collection	
चिकित्सासेवा		reference	
प्रोटोजोआ परजीवियों		TYPE of	
हवाई द्वीपसमूह		lexicalised.collection	
प्रतिरोध क्षमता		topic	
एनोफिलीज़गण		collection	
लार ग्रथियों		Purpose	
मानवशरीर		possessorpossesed	
मेहमान कोशिका		topic	
मानववस्तु		ossesorossesed,location	
पक्षीप्रजातियाँ		topic	
जनस्वास्थ्यसमस्या		topic,Purpose	
दवा प्रतिरोधकता		property	
मनुष्यजाति		collection	
मलेरियाशब्द		reference	
मलेरियारोग		TYPE of	
चिकित्सा-नोबेलपुरस्कार		Purpose,TYPE of	
पीतज्वर		TYPE of	
मलेरिया नियंत्रण		objectactivity	
एन्टीबायोटिकदवाओं		property	
रक्तचरण		object	
मानवसमुदाय		collection	
प्रक्षालन जल		Purpose	
आर्द्रता चक्रों		measure of	
ड्रॉपलेट इनफेक्शन		activity	
क्षय कष्ट		location	

FIGURE B.2: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix B. HINDI HEALTH COMPOUND NOUN DATA

इनफ्लूँजा	वायरस	TYPE of	
अस्थि	मेट्रिक्स	location	
अस्थि	खनिज	location,property	
विटामिन	निर्माताओं	erson	
अस्थि	पिंड	made of, collection	
मानक	विचलन	measure	
जीवन	प्रत्याशा	topic	
अस्थिअवशोषण		object	
पुनर्प्रतिरूपण	मेट्रिक्स	Purpose	
अस्थिमज्जा		location	
स्तनग्रंथि		location	
केल्शियम	चयापचय	instrument, source	
अस्थिनिक्षेपण		object	
केल्शियमस्तर		property	
परमाणुकारक		topic	
ट्यूमरपरिगलनकारक		topic, Purpose	
ज़ीप्लेट	इनफ्लेक्शन	cause	
रोगप्रतिरोधक्षमता		Purpose, topic	
स्ट्रॉन्शियमरीनलेट		lexicalised	
प्युरलेटब्रॉनिकाइटिस		lexicalised	
जीवनशैली		topic	
अस्थिनिर्माण		object	
भार	वहन	object	
अस्थिशोषको		property	
अस्थिभंग		change	
खसरा मस्तिष्कशोध		lexicalised	
चिकित्सासल्लाह		Purpose	
रेजिसिड्युम		lexicalised	
विटामिनए		lexicalised	
यूनिसेफ		Lexicalized	
टीकाकरण अभियान		Purpose	
एस्ट्रोनिन	प्लेग	TYPE of	
खसरावायरस		cause	

FIGURE B.3: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix B. *HINDI HEALTH COMPOUND NOUN DATA*

मोरिसहिलमैन	lexicalised		
भूणउतक	location		
ऐलोवेरा युक्त क्लीजिंग जेल	material,made of		
मृत त्वचा	property		
हील स्कबर	Purpose		
टीकाकरणकार्यक्रम	topic		
स्वास्थ्यविभाग	Purpose		
स्वास्थ्यकर्मचारियों	Purpose		
उद्भवकाल	time		
रुधिरविषाक्तता	location		
जीवविष	location		
सायुतंत्र	Purpose		
श्वसमार्ग	instrument		
बहर्तनिकाशोध	lexicalised		
हृत्पेशीस्तर	location,measure		
ग्रसनी शोध	location		
फंगससंक्रमण	cause		
नितंबप्रान्त	location		
अंतपेशीइजेक्शन	location		
प्रतिजीवविषों	source,instrument		
जीवनवर्ष	measure		
रोगभार	measuretime		
हड्डीतोड़बुखार	lexicalised		
वायरस आइसोलेशन	objectactivity		
डेंगूवायरस	cause		
अम्लपहचान	topic		
पॉलीमर्सचेनरिएक्शन	lexicalised		
एंटीजनपहचान	topic		
अम्लपहचानपरीक्षण	topic,object		
शिराद्रव्य	location		
रक्तआधान	change		
विश्वपुद्ध	location		

FIGURE B.4: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix B. HINDI HEALTH COMPOUND NOUN DATA

नेत्रसफाउडेशन	lexicalised		
यूनिसेफ	lexicalised		
ई.पू.	lexicalised		
मधुमेह रोग	TYPE of		
चेचक रोग	TYPE of		
वर्ल्डहेल्थअसेंबली	lexicalised		
चिकित्सक मोहम्मद इब्न जकारिया	lexicalised		
मोरिसहिलमैन	lexicalised		
चिकित्सासल्लाह	topic		
गुर्दा प्रत्यारोपण	object		
प्रोटीनसंरचना	object		
रैपिड एंटीजन डिटेक्शन टेस्ट	lexicalised		
ब्रेकहार्टफीवर	lexicalized		
बिलियरारिफिटिंगफीवर	lexicalised		
डेंगुवर्गीकरण	topic		
स्वास्थ्यसेवापेशेवरों	Purpose,erson		
शॉकसिंड्रोम	lexicalized		
फूफफूसप्रवाह	location		
प्लेटलेटसंख्या	measure		
प्रयोगशालापरीक्षण	location		
टायफोएडिब्रुखार	TYPE of		
दुर्निकटपरीक्षण	TYPE of		
चेतावनीचिह्न	measure		
अंतःशिराद्रव्य	location		
चिकित्साप्रक्रियाओं	topic		
स्वास्थ्यस्थिति	topic		
डेंगरोग	TYPE of		
अस्थिसंरचना	object		
सघन चिकित्सा इकाई	property,Purpose		
चिकित्सा विश्वकोष	Purpose		
शल्य चिकित्सा	topic		
काय चिकित्सा	topic		
डिसिज़कटोल	topic		

FIGURE B.5: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix B. HINDI HEALTH COMPOUND NOUN DATA

स्वास्थ्य समस्या	topic		
बर्डस अस्पताल	Purpose,TYPE		
आईस्क्यू लेवल	measure of		
आई मेकअप	location		
स्किन टोनर	Purpose		
नियंत्रणएजेटो	Purpose		
जिलेटिन पाउडर	made of		
ब्रेकबोन फीवर	property		
प्रशांतक्षेत्र	lexicalised		
शॉकसिडोम	lexicalised		
20वीं शताब्दी	lexicalised		
मलेरिया परजीवी	cause		
अक्षय जीवन	property/modifier		
स्वास्थ्य पत्रिका	topic		
मासिक स्वास्थ्य पत्रिका	modifier/property		
वायरस संक्रमण	objectivity		
हार्ट अटैक	location		
हिट स्ट्रोक	cause		
वज्र मुद्रा	lexicalized		
सर्दी जुकाम	Couulative		
उदर क्षेत्र	location		
इमलावर वायरस	property		
जीवन शैली	reference		
मनोभ्रंश रोग	Type of		
विकलता समायोजित जीवन वर्ष	topic, measure of		
ग्लोबल डिमेंशिया एक्शन प्लान	purpose,type of		
ब्रेन ट्यूमर	location		
वैश्विक मनोभ्रंश वेधशाला	purpose		
महामारी विज्ञान	topic (related)		
अंतर्राष्ट्रीय निगरानी मंच	topic/location,purpose		
जोखिम कारक	purpose		
मादक द्रव्य	property		
स्वास्थ्य देखभाल सेवा	topic, reference		

FIGURE B.6: Compound Noun Data Extracted from Hindi Disease Corpus

Appendix C

COMPOUND NOUN DATASET

The annotated Hindi Compound noun data extracted from the multiword expression and used in this thesis for machine learning experiments. The devnagri script is transliterated into roman script using WX notation.

Compound Nouns Semantic Relation

kAnUna vixyAlaya 1

Ayakar viBAG 1

viJFAn viSvavixyAlaya 7

kaMpyUtara gema 5

Biwwi ciwroM 3

viktoriyA prAMwa 6

sambalapura jile 6

neharU parivAra 6

rakwa kEMsara 3

mijorama rAjya 6

namaka kAnUna 7

kurwA pAjAmA 8

GudZasavArI vixyAlaya 1

Appendix C. HINDI GENERAL COMPOUND NOUN DATA

WX Notation Scheme:

अ-a	आ-A	इ-i	ई-I	उ-u	ऊ-U	ं-M
ऐ-eV	ए-e	ऐ-E	ओ-oV	ओ-o	औ-O	ः-H
	क-ka	ख-Ka	ग-ga	घ-Ga	ङ-fa	
	च-ca	छ-Ca	ज-ja	झ-Ja	ञ-Fa	
	ट-ta	ठ-Ta	ड-da	ढ-Da	ण-Na	
	त-wa	थ-Wa	द-xa	ध-Xa	न-na	
	प-pa	फ-Pa	ब-ba	भ-Ba	म-ma	
	य-ya	र-ra	ल-la	व-va	श-Sa	
	ष-Ra	स-sa	ह-ha	ऋ-q	ँ-z	
	ऌ-Z	ळ-IY	ठ-rY	ॠ-IYY	ँ-eY	
	०-0	१-1	२-2	३-3	४-4	
	५-5	६-6	७-7	८-8	९-9	
	ऋ-Q	ँ-Z	ँ-aV	ॡ-sYZ	S-aY	

FIGURE C.1: WX Notation

xurgA manxira 6
rAjasWAna rAjya 6
pulisa hirAsawa 9
janahiwa yAcikA 1
vyAsa naxI 6
wIrWa sWala 7
kAra iMdastrI 7
yAwrA vqwwAnwa 7
svarNa pawra 10
jahAzgIra mahala 11
nAgarika senA 10
dAtA sikyuritI 7
SiSu viSeRajFa 1
lahasuna breda 10
jIva jaMwu 8
sAikila yAwrAcM 4
saMgIwa AcArya 7
praSAMwa mahAsAgara 6
paScima oYstrelia 17
aXyayana kenxra 1
relave pulisa 5
kuMBAra koYlonI 1
nIlagiri SrqMKalA 6
rikSA cAlaka 16
XyAna kenxra 1
musalamAna yuga 7
nyUyoYrka viSvavixyAlaya 6
neharU bAjAra 6
hAsya PZilma 7
hAWI xAMwa 13

boYmbe hAI_korta6
ajameraparyatana7
lokasaBAaXyakRa7
rAmamaMxira7
varwamAnayuga15
ApaxAprabaMXana1
hoYkIKilAdZI16
kriketamEca15
neharUpArka6
waMxuruswIkenxra1
JUmaKewI5
barokaSEI5
jZilApraSAsana7
vanaaXikAriyoM7
KarIxxArIkenxra1
ApAwabETaka15
sigaretapEka7
butIkahotala15
kalAkeMxra7
sarrAPAbAjAra7
nEnanaxI6
AjFApawra5
AxivAsIhaswakala7
jAvAxvIpa6
kacCasaMgrahAlaya3
JIMgAPEktarI7
kenxrasarakAra15
BArawIyaXaneSa15
guPAciwrakArI3
kAryakArIsamiwi15

siMgApuracidZiyAGara6
BagavAnaxawwAwreya6
canxraBagavAna6
testamEca5
KAdZIyuxXa6
bajatamotala15
kqRipariRaxa7
cInIuxyoga15
kaliMgasAmrAjya6
sArasaaByAraNya1
ahamaAbAxarelavesteSana6
joXapurajile6
livarakEMsara3
jIpayAwrA5
jamInavivAxa7
yAwrAuxyoga7
brAhmaNIcIla18
paScimajAvA17
kisAnamahApaMcAyawa1
BArawasarakAra6
nijAmAbAxajiloM6
maXyapraxeSarAjya6
saMrakRaNaetjeMsI7
jZilAmuKyAlaya3
sabjIbAjAra15
nqwyasaMgIwa8
gEsakaMpaniyom7
pulisakamiSnara7
guPAmanxirom3
kAlepAnI18

bikrIkeMxroM1
bunAIkenxra1
prawiniXisaMsWAez15
AmaMwraNapawra5
welauwpAxaka16
kqRikenxra7
SoXasamiwi1
surakRAkarmiyom1
sahAyawAsAmagrI1
sIdIbAjAra7
ciwrakArIvixyAlayoM1
ciwragupwamaMxira7
ciwrakalAoM7
paramANubijalIGara15
praSikRaNakAryakrama1
pAcanawaMwra1
aMwarikRaanusamXAna7
cewAvanIwaMwra1
jalajIvaSAlA1
wAMdavanqwy5
yUpIsarakAra6
udZIsAsarakAra6
sUryaBagavAna6
siMXuGAtI6
sAMKyikIviBAga7
asWivisarjana16
saMcArapraNAlI1
pAlakapanIra8
cInasAgara6
SabxakoRa7

AxinAWamaMxira7
wIswAnaxI6
neharUsmAraka6
relasteSana1
swanatyUmara3
siKasamAja15
wavAMgajile6
iMdoneSiyAgaNarAjya6
cAcAcAciyoM8
sAjoMsAmAna18
viyawanAmayuxXa6
mAovAxIsarakAra15
AzXIwUPZAna8
gaNawaMwaxivasa18
mugalakAla7
sawalujanaxI6
wIrWaxAwrAkeMxra1
pulisasteSana7
saMsaxasaxasya7
rAjAmahArAjA8
KajurAhomaMxira6
karmacArIgaNa19
basadrAivara16
vqnxAvanamaMxira6
semIPAinalamEca5
parivAraniyojana7
mAMsamaCalI8
sImAMwapraxaSa3
pulisamahakamA19
asamarAjya6

*pUrvIvASiMgatana*17
*maXyayuga*15
*jalaswara*20
*SikRAbajata*1
*someSvaramaMxira*3
*petroliyamamaMwrAlaya*7
*xillIsarakAra*6
*uxayapurajile*6
*yakqwakEMsara*3
*vivaraNapuswikA*1
*rAgyapraSAsana*7
*SvewajanasaMKyA*15
*dronaplana*5
*WAraregiswAna*6
*bacawayoJanA*1
*svAsWyamaMwriyoM*7
*gaNeSauwsava*7
*SimalAvimAnawala*3
*siraxarxa*3
*ApravAsanaprAXikAroM*7
*svAsWyaparyatana*1
*narmaxAGAta*7
*garabAnqwyoM*6
*yAwrAkaMpanI*1
*gomAMsakabAba*10
*rAjasWAnaparyatana*7
*pArasIBojana*7
*xUrasaMcArasevA*7
*xillIhavAIadde*3
*brajaBUmi*18

paramANuIMXana2jAMcaAyoga1
pakRIaBayAraNya1hoYkItUrnAmeMta15
micalIultI8haswaSilpa.xukAnoM7
maleSiyArabara5siMcAIpraNAII1
JArakaNdasarakaAra6nAsikajile6
sAbaramawInaxI6caMxelavAswukalA7
paryatanakRewra1sImAMwarelave3
iMtaranetakaneKsana15surakRAviBAga1
mIdiyAjagawa7xillIhAta3
SahaMSAhaakabara6jagamaMxira7
vrawaupavAsa8byAsanaxI6AXAraSivira1
pahAdZIJanaJAwiyom5vhelamaCalI6kaMXAraprAMwa6AyAwaGotAlA15
KameravAswukalA7Pilmauwsava7niryAwaaXiSeRa7nIwinirXAraNa16
mahilAyugala15kinnOrajile6mAnaapamAna8
yAwAyAwapulisa1xarabArahAla1jilApITa3yuxXasvAmi9
padZAvaSulka1nAtyklaboM7majZaxUravarga19
namakaAMxolana6mAMsaprotIna3karOIjile6
prasAraNakAla7XanaarWavyavasWA15jIpaAKeta4
matanadosA10malayabAGA6pUjAGara1
nyUjacEnala5svawaMwrawAsaMgrAma1gEsaAvaMtana16
kriketaborda7sAbaramawIASrama6dronavimAna5maMxAkinInaxI6
kriketamExAna1siMXasarakAra6olaMpikastediyama15eksapresarela15
SiSucikiwsaka1svAxakalikAez1bukiMgaxara20xUrasaMcAraniyAmaka16
saMcArakeMxra1ulatIraswa8aMwarikRamiSana7aNdASayakEMsara3
paramANuyuxXa15ritAyarameMtaumra1
BUmipUjA16BojanahAla1
laMxanaSahara6punarvAsakAryakrama1
vAhananirmAwA16garBASayaprawyAropaNa16AropaprawyAropa8yuxXaswara15plAMtaoY
aBinayaSEII1/7rediyoprasAraNa4SoXasaMsWAna1hExarAbAxaSahara6
paramANuhaWiyAra10rAjAjanaka6BUSarvekRaNa7mAwqmquyu.xara7

Appendix C. HINDI GENERAL COMPOUND NOUN DATA

kqRianusaMXAna7AzwakEMsara3siMgApuranaxI6
yakqwakoSikAoM3prasAXanasAmagriyoM1vipakRapArtiyoM15poRaNaviSeRajFa7
hqxayagawi20BAIbahana8K AxyauwpAxana16
xevImanaxira15uxyAnakAryAlaya7paryatakaAvAsa1muxrAbAjZ Ara16
swanapAyIprajAwiyAz5siMhAsanakakRa1caMdIgaDZapraSAsana6
vhelaSArka6x Ax Ax Ax I8
relamaMwrAlaya7arjunavqkRoM6relaparivahana4
maMxiravAswukalA7ApUrwimaMwrAlaya7
janmaxinasamAroha1loka,aBAcunAva5
mEsUrarAjya6vyavasAyakeMxra16bijanesamoYdala15uwpAxanakRewra1
rakwaparIkRaNa16rAjyakarmacArI15|7m.Anavauwpawwi16
sawapudZApahAdZiyoM6telikoYmakaMpanI15BUwaprewoM8vasaMwamahowsava7
piwwavAhikAoM3xUXauwpAxana7
yakqwavqxXi20vyApArasaMgaTana15tEksaviBAga1
baMbaIstoYka_eksaceMja6vixyuwaAvegoM20sarvisatEksa1
kItavEjFAnika7tEksIcAlaka16
AyakaraaxAlawa7xurgAmaMxira7saMsaxaaXyakRa7
vANijyaxUwAvAsa7samrAtaOraMgajeba6rAgaxIpaka6
laKIsarAyajZile6gEsakAMda7romanakalA15
CawrapawiSivAjI6iMtaranetakeMxra7cEwyAhoYla6mAnasapatala15
xAnaaXiniyama1hiMxUpariRax7KojakarwA16
gurugoraKanAWa6garBASayagrIvA18vEjFAnikamiSana15
vijFAnasaMvAxaxAwA7welaKanana16saMwamerI6
jIvanabImA1senAsaMgrahAlaya7
lAhOraSahara6sAhibaguru_{xv}ArA6
pulisaxivasa1kalAsaMsWAna7
saByawAsaMgrahAlaya7mEwrIBAva15
CawwIsagaDZapulisabacAvatIma1
saPZArImArga1parivahanavyavasWA1paryatakasEragAhoM1
goWikaSEII15rAmakaWA7sulwAnasikaMxara6

Appendix C. HINDI GENERAL COMPOUND NOUN DATA

JlIaparyatana7iMdoneSiyAsarakAra6rakwavAhikAoM7testatIma1
maxrAsaSahara6pulisapraSAsana7tEksaniyamoM7
kabjZaxaswa8janmaxoRoM2arabaprAyaXvIpa6
svAsWyakenxra7kalAsaMgrahAlaya7wamilanAdurAjya6
muslimavAswukalA15vyaMjanasUcI7paXakawAlikA7
nAriyalaPenI10buXaBagavAna6mahilAsparXA7
trakacAlakoM16sarpanOkAoM5sImeMtaroda13
saMcArasAXanoM1gujarAwaprAMwa6rAjapUwaSAsakoM6puRkaramelA6
cikanaSorabe13vikrayakeMxra1saMgIwasamAroha7pArSvanAWamaMxira6
jAvAprAMwa6swanaxUXa2
lAhOlaGAtI6vanakatAI16

Appendix D

QUALIA REPRESENTATION

The appendix contains the Generative Lexicon based representation of most frequent compound nouns of ayurveda domain.

The GL representation of *rasa*

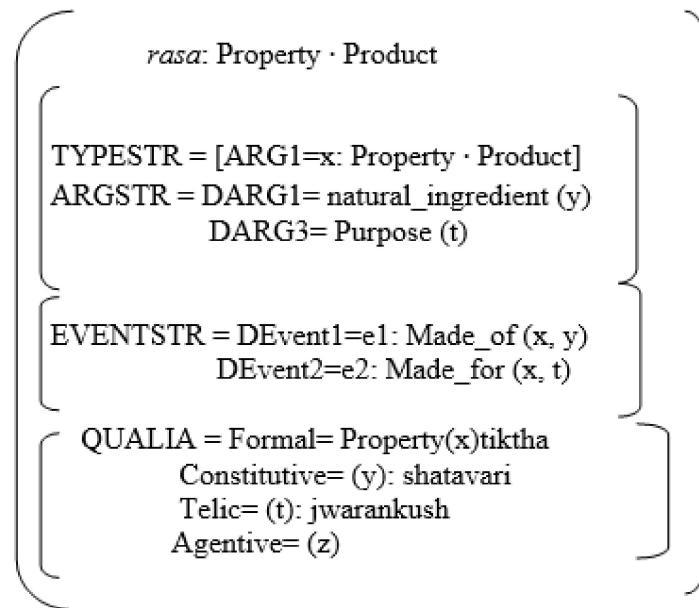


FIGURE D.1: Qualia Representation of 'rasa'

The GL representation of *dravya*

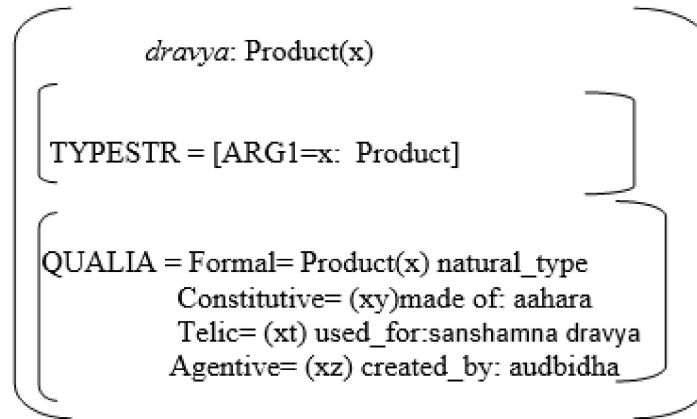


FIGURE D.2: Qualia Representation of 'dravya'

The GL representation of *prakriti*

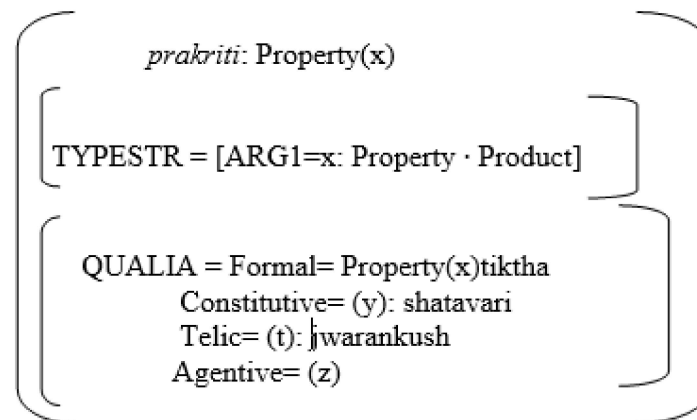


FIGURE D.3: Qualia Representation of 'prakriti'

The GL representation of *ghrita*

The GL representation of *curNa*

The GL representation of *vaTi*

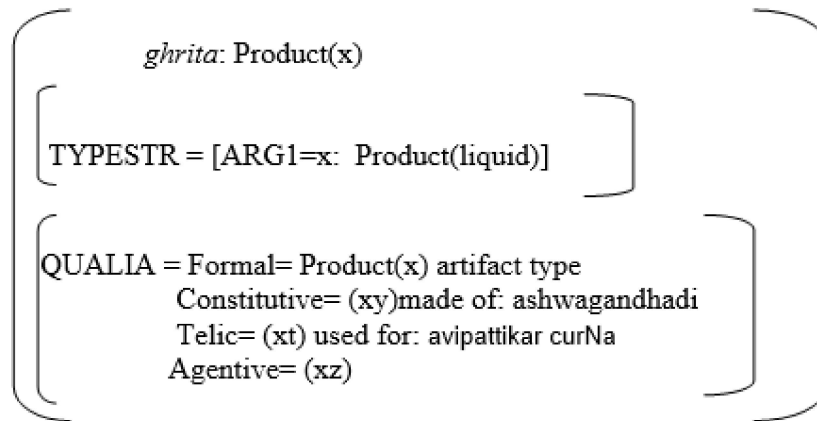


FIGURE D.4: Qualia Representation of 'ghrita'

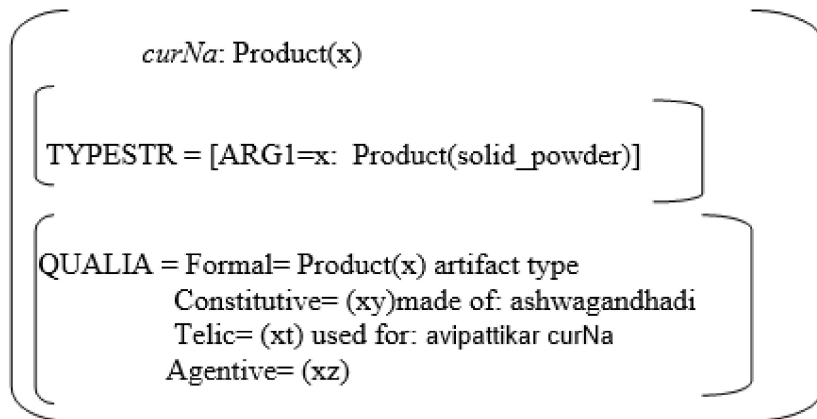


FIGURE D.5: Qualia Representation of 'curNa'

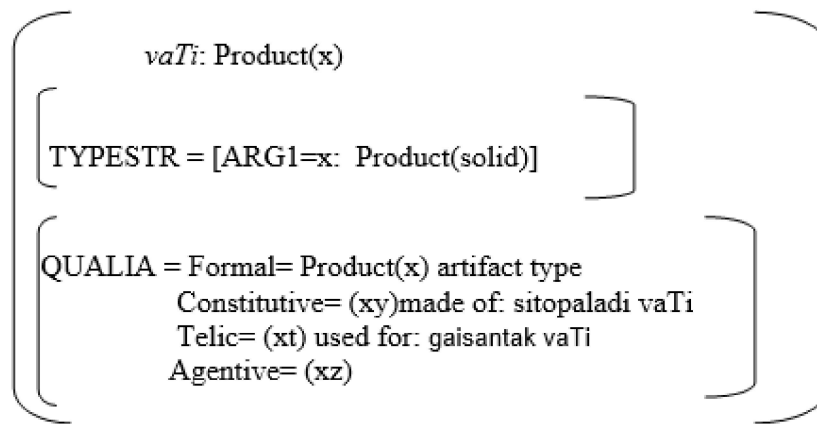


FIGURE D.6: Qualia Representation of 'vati'