Inchoative/Causative Verb Alternations re-revisited

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Work in Progress (17 April 2007)

Taking a *radical relativistic comparative approach*

- Important: comparing like with like
- Difficult: what counts as 'alike' across languages?
- Today: how much can be done without any equation across languages?

Inchoative - causative verb pairs

- Causative
  "The girl broke the stick."

- Passive of Causative
  "The stick was broken (by the girl)."

- Inchoative
  "The stick broke."

Some non-identical verb pairs in English

- *die - kill*
- *learn - teach*
- *rise - raise*
- *get lost - lose*
- *go out - put out*

Strategies for encoding inchoative-causative relation

- Different roots: **Suppletive** strategy (e.g. *die - kill*)
- Same roots:
  - No differentiation: **Labile** strategy (e.g. *break*)
  - With differentiation (functional typology):
    - Causative derived from Inchoative:
      Causative strategy (e.g. German *enden - beenden)*
    - Inchoative derived from Causative:
      Anticausative strategy (e.g. *be destroyed - destroy*)
    - No (synchronic) primacy for one or the other:
      Equipollent strategy (e.g. German *versinken - versenken*)

(Terminology of: Haspelmath 1993)

Strategies for encoding inchoative-causative relation

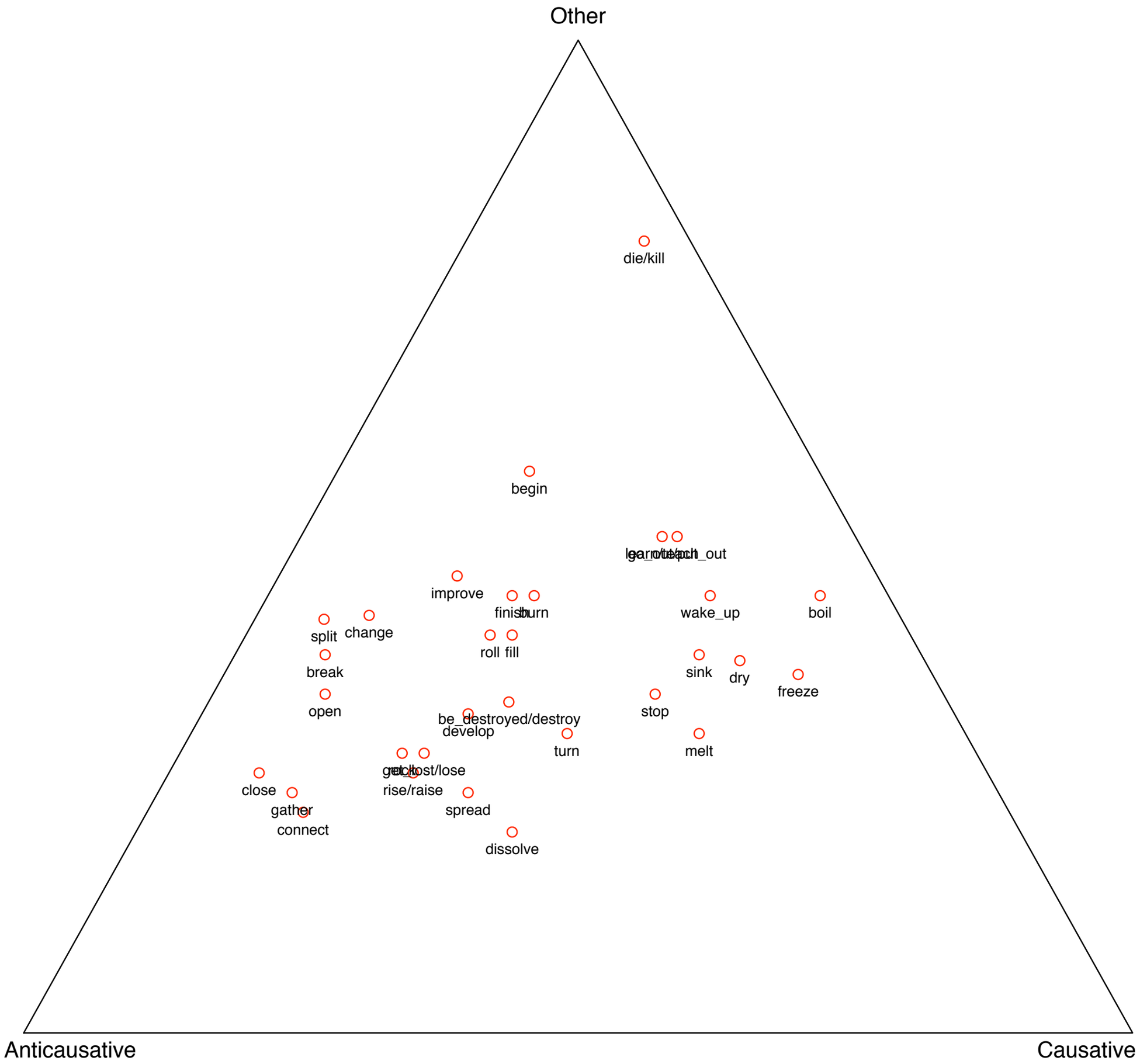
- Different roots: **Suppletive** strategy (e.g. *die - kill*)
- Same roots:
  - No differentiation: **Labile** strategy (e.g. *break*)
  - With differentiation (formal typology):
    - Independent words used to mark relation: **Isolating** strategy (e.g. German *sich öffnen - öffnen)*
    - Linear morphology used to mark relation: **Concatenative** strategy (e.g. German *enden - beenden*)
    - Nonlinear morphology used to mark relation: **Nonlinear** strategy (e.g. German *versinken - versenken*)

	Anticausative	Equipollent	Causative
Isolating	**67** (+30)	15 (-5)	3 (-25)
Concatenative	154 (-23)	86 (-8)	**164** (+31)
Nonlinear	19 (-7)	**26** (+13)	14 (-6)

Table 4. *Expression types by verb pairs*

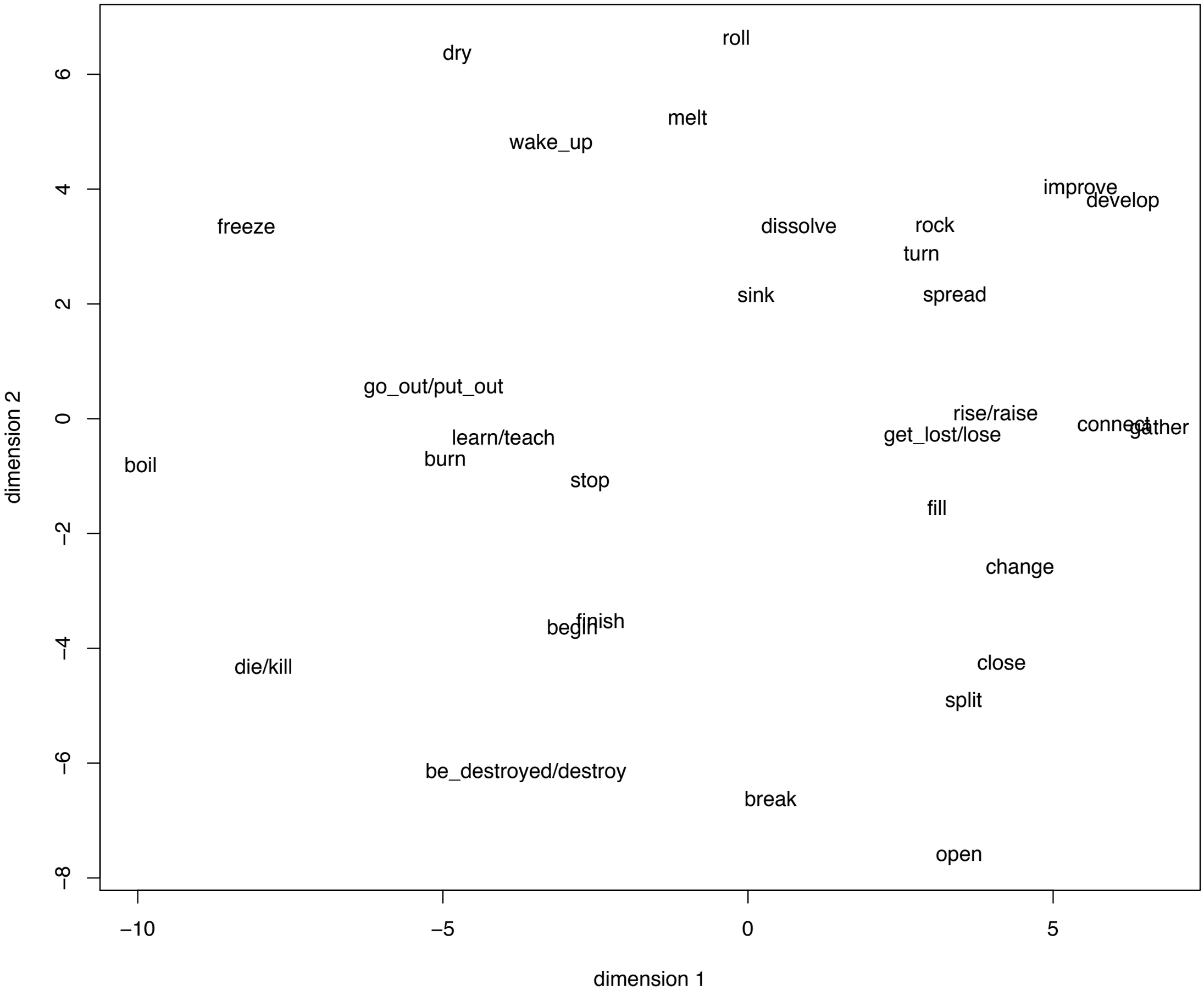
		total	A	C	E	L	S	A/C
18.	'boil'	21	0.5	11.5	3	6	0	0.04
25.	'freeze'	21	2	12	3	4	0	0.17
29.	'dry'	20	3	10	4	3	0	0.30
1.	'wake up'	21	3	9	6	2	1	0.33
20.	'go out/put out'	21	3	7.5	5.5	3	2	0.41
11.	'sink'	21	4	9.5	5.5	1.5	0.5	0.42
8.	'learn/teach'	21	3.5	7.5	6	2	3	0.47
13.	'melt'	21	5	10.5	3	2.5	0	0.48
31.	'stop'	21	5.5	9	3.5	3	0	0.61
23.	'turn'	21	8	7.5	4	1.5	0	1.07
26.	'dissolve'	21	10.5	7.5	2	1	0	1.40
3.	'burn'	21	7	5	2	5	2	1.40
14.	'destroy'	20	8.5	5.5	5	1	0	1.55
27.	'fill'	21	8	5	5	3	0	1.60
22.	'finish'	21	7.5	4.5	5	4	0	1.67
7.	'begin'	19	5	3	3	8	0	1.67
10.	'spread'	21	11	6	3	1	0	1.83
24.	'roll'	21	8.5	4.5	5	3	0	1.89
16.	'develop'	21	10	5	5	1	0	2.00
15.	'get lost/lose'	21	11.5	4.5	4.5	0	0.5	2.56
21.	'rise/raise'	21	12	4.5	3.5	0	1	2.67
28.	'improve'	21	8.5	3	8	1.5	0	2.67
19.	'rock'	21	12	4	3.5	1.5	0	3.00
17.	'connect'	21	15	2.5	1.5	1	1	6.00
12.	'change'	21	11	1.5	4.5	4	0	7.33
9.	'gather'	21	15	2	3	1	0	7.50
5.	'open'	21	13	1.5	4	2.5	0	8.67
2.	'break'	21	12.5	1	4	3.5	0	12.50
6.	'close'	21	15.5	1	2.5	2	0	15.50
30.	'split'	20	11.5	0.5	5	3	0	23.00
4.	'die/kill'	21	0	3	1	1	16	—
total		636	243	164.5	128.5	69	31	

(Source: Haspelmath 1993)


Other
die/kill
begin
improve
finish
burn
split
change
roll
fill
break
open
develop
turn
close
gather
connect
rise/raise
spread
dissolve
wake_up
boil
sink
dry
freeze
stop
melt
Anticausative
Causative

Radical relativistic approach: only accept language internal grouping

wake up	0	17	16	20	17	16	19	15	17	12	16	17	13	18	18	16	17	16	14	13	14	16	12	15	15	11	13	15	13	16	12
break	17	0	13	19	10	12	16	19	14	15	15	13	15	13	18	16	15	17	13	16	16	14	14	16	18	14	14	16	17	7	13
burn	16	13	0	20	16	17	16	18	16	16	18	16	15	19	19	19	17	15	14	17	16	15	17	14	15	15	19	19	14	14	15
die/kill	20	19	20	0	21	21	21	21	21	21	20	21	21	18	21	21	20	18	21	19	20	20	20	21	19	20	20	21	20	20	20
open	17	10	16	21	0	10	16	18	12	14	16	13	16	15	16	16	15	19	14	17	14	13	15	18	19	15	11	16	19	10	14
close	16	12	17	21	10	0	13	16	11	15	17	13	15	17	15	14	11	19	12	16	14	13	12	15	18	13	14	14	19	12	15
begin	19	16	16	21	16	13	0	14	15	16	18	14	16	18	19	17	17	15	15	18	18	11	16	16	16	16	16	18	18	17	15
learn/teach	15	19	18	21	18	16	14	0	17	16	18	16	17	16	18	18	18	17	14	18	16	14	15	15	16	16	17	19	19	19	13
gather	17	14	16	21	12	11	15	17	0	11	15	11	14	18	16	10	9	20	9	17	10	14	12	12	19	12	14	12	17	12	16
spread	12	15	16	21	14	15	16	16	11	0	14	13	10	15	13	14	10	19	12	17	11	14	11	14	17	8	10	13	15	14	13
sink	16	15	18	20	16	17	18	18	15	14	0	17	14	17	16	15	16	18	13	16	18	17	13	16	18	13	16	14	16	16	16
change	17	13	16	21	13	13	14	16	11	13	17	0	16	17	16	12	11	19	12	18	13	13	13	15	17	14	12	13	17	12	16
melt	13	15	15	21	16	15	16	17	14	10	14	16	0	17	16	16	15	16	11	16	16	16	12	9	15	10	14	14	12	15	15
be destroyed/destroy	18	13	19	18	15	17	18	16	18	15	17	17	17	0	19	20	17	18	18	17	19	17	16	18	18	15	16	19	19	16	16
get lost/lose	18	18	19	21	16	15	19	18	16	13	16	16	16	19	0	16	15	21	17	17	15	18	15	18	19	15	14	16	19	17	15
develop	16	16	19	21	16	14	17	18	10	14	15	12	16	20	16	0	11	20	11	18	14	16	10	12	18	13	14	8	16	15	15
connect	17	15	17	20	15	11	17	18	9	10	16	11	15	17	15	11	0	19	12	18	11	17	11	15	19	12	13	14	16	13	15
boil	16	17	15	18	19	19	15	17	20	19	18	19	16	18	21	20	19	0	18	17	20	16	18	17	16	15	18	20	16	18	16
rock	14	13	14	21	14	12	15	14	9	12	13	12	11	18	17	11	12	18	0	17	12	16	10	8	15	11	14	12	15	13	14
go out/put out	13	16	17	19	17	16	18	18	17	17	16	18	16	17	17	18	18	17	17	0	16	15	15	18	14	14	15	17	14	17	15
rise/raise	14	16	16	20	14	14	18	16	10	11	18	13	16	19	15	14	11	20	12	16	0	14	14	16	18	13	14	14	16	13	15
finish	16	14	15	20	13	13	11	14	14	14	17	13	16	17	18	16	17	16	16	15	14	0	17	16	16	14	15	15	15	16	13
turn	12	14	17	20	15	12	16	15	12	11	13	13	12	16	15	10	11	18	10	15	14	17	0	12	15	9	9	12	16	13	11
roll	15	16	14	21	18	15	16	15	12	14	16	15	9	18	18	12	15	17	8	18	16	16	12	0	14	12	17	12	14	17	16
freeze	15	18	15	19	19	18	16	16	19	17	18	17	15	18	19	18	19	16	15	14	18	16	15	14	0	17	17	19	13	19	14
dissolve	11	14	15	20	15	13	16	16	12	8	13	14	10	15	15	13	12	15	11	14	13	14	9	12	17	0	11	13	12	14	15
fill	13	14	19	20	11	14	16	17	14	10	16	12	14	16	14	14	13	18	14	15	14	15	9	17	17	11	0	13	17	12	14
improve	15	16	19	21	16	14	18	19	12	13	14	13	14	19	16	8	14	20	12	17	14	15	12	12	19	13	13	0	15	14	16
dry	13	17	14	20	19	19	18	19	17	15	16	17	12	19	19	16	16	16	15	14	16	15	16	14	13	12	17	15	0	16	17
split	16	7	14	20	10	12	17	19	12	14	16	12	15	16	17	15	13	18	13	17	13	16	13	17	19	14	12	14	16	0	16
stop	12	13	15	20	14	15	15	13	16	13	16	16	15	16	15	15	15	16	14	15	15	13	11	16	14	15	14	16	17	16	0


roll
dry
melt
wake_up
improve
develop
freeze
dissolve
rock
turn
sink
spread
go_out/put_out
rise/raise
connect
gather
learn/teach
get_lost/lose
boil
burn
stop
fill
change
finish
begin
close
die/kill
split
be_destroyed/destroy
break
open
6
4
2
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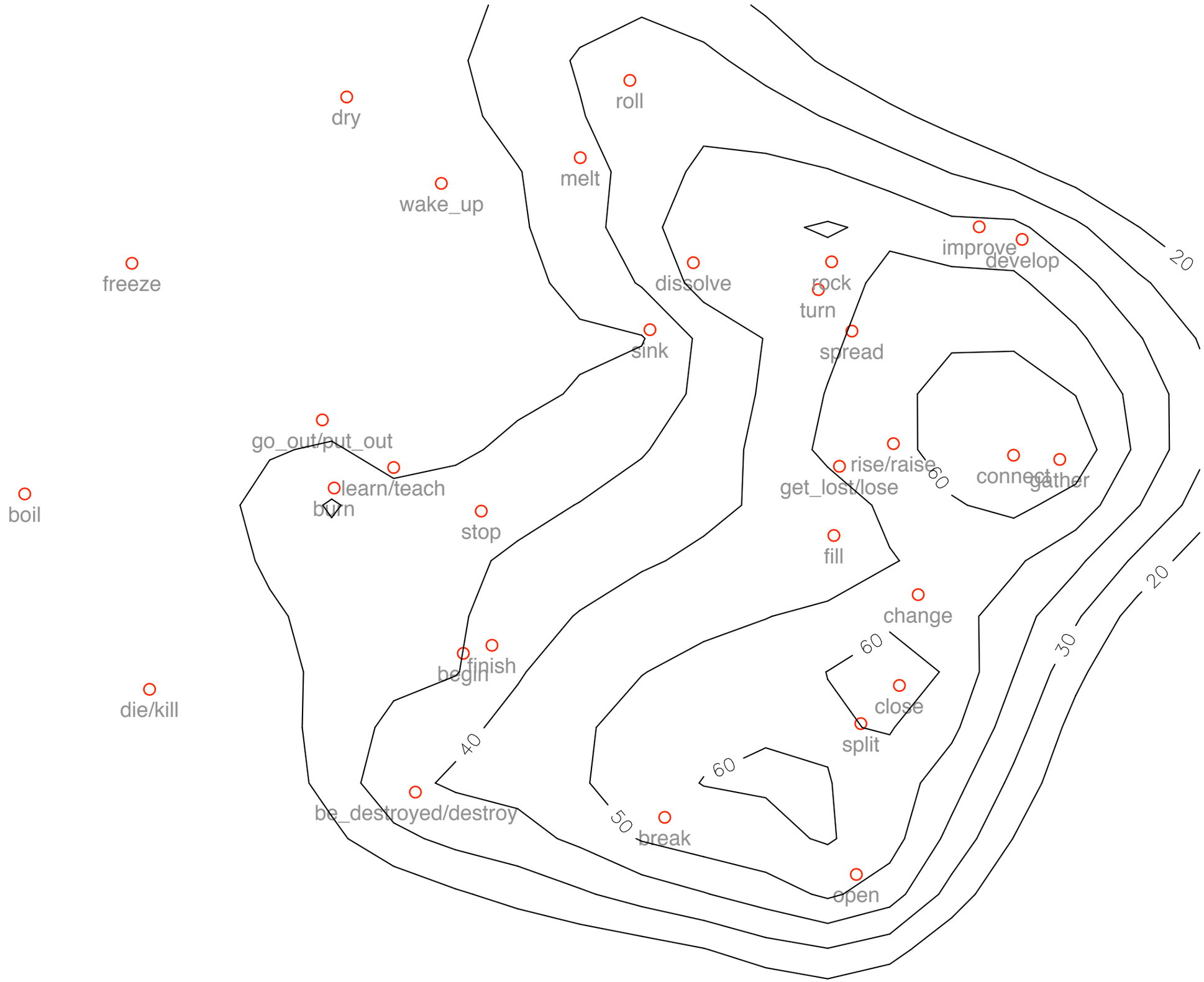
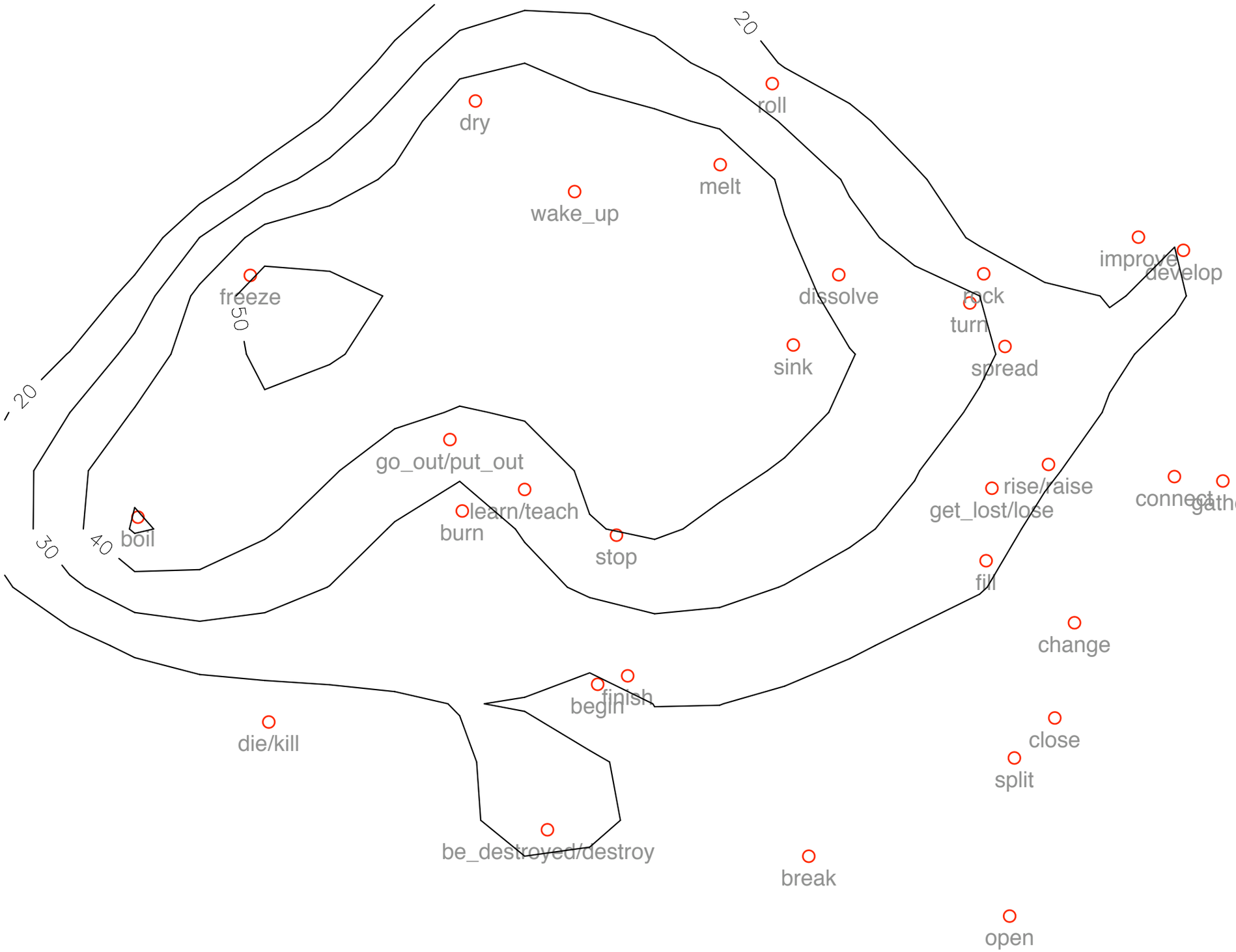
5
dimension 2
dimension 1

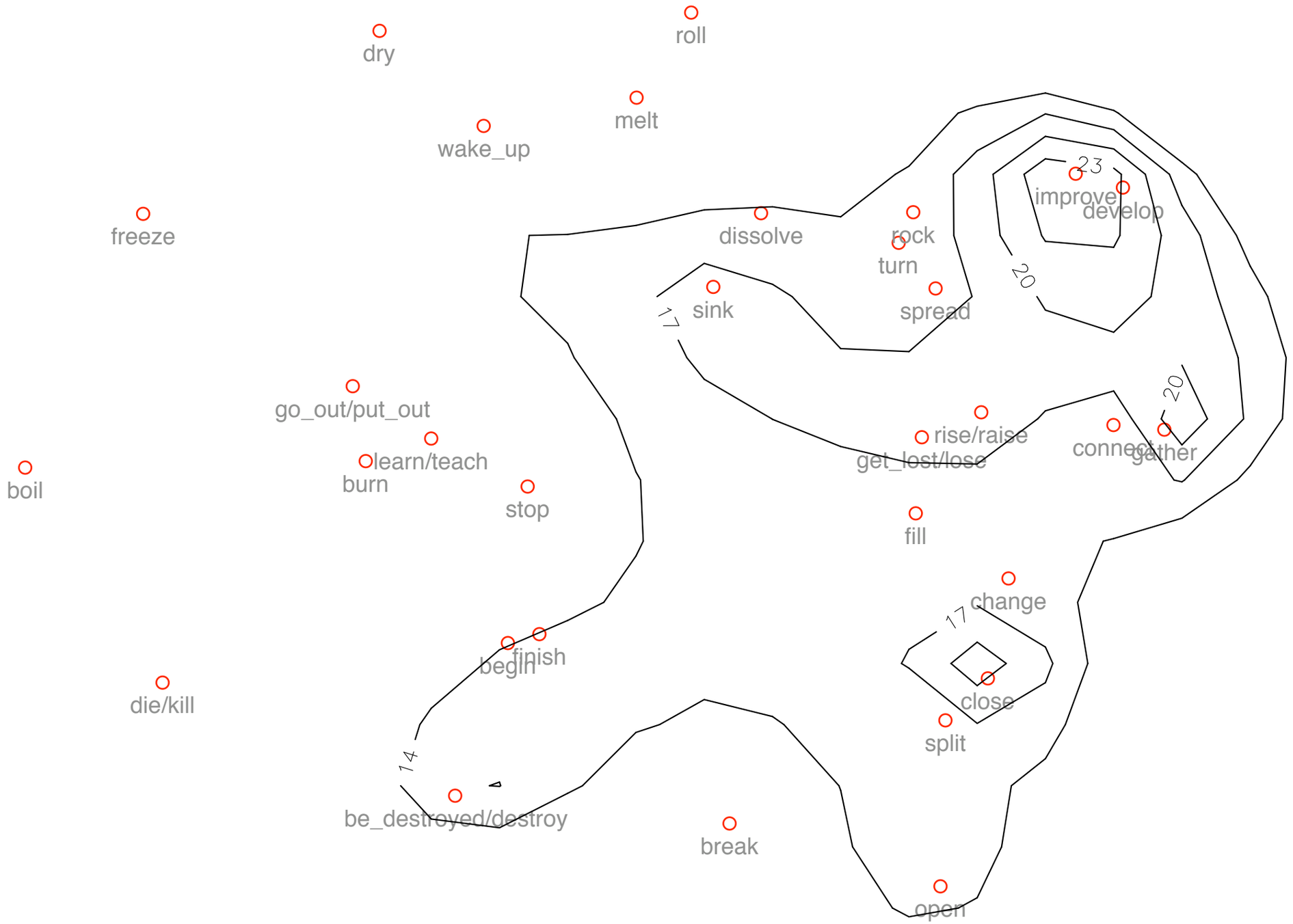
Anticausative



Causative


20
dry
roll
melt
wake_up
improve
develop
freeze
50
dissolve
rock
turn
sink
spread
- 20
go_out/put_out
rise/raise
connect
gather
learn/teach
get_lost/lose
30
40
boil
burn
stop
fill
change
finish
begin
die/kill
close
split
be_destroyed/destroy
break
open

Isolation


dry
roll
melt
wake_up
freeze
dissolve
rock
turn
sink
spread
23
improve
develop
20
17
go_out/put_out
learn/teach
burn
boil
stop
rise/raise
get_lost/lose
connect
gather
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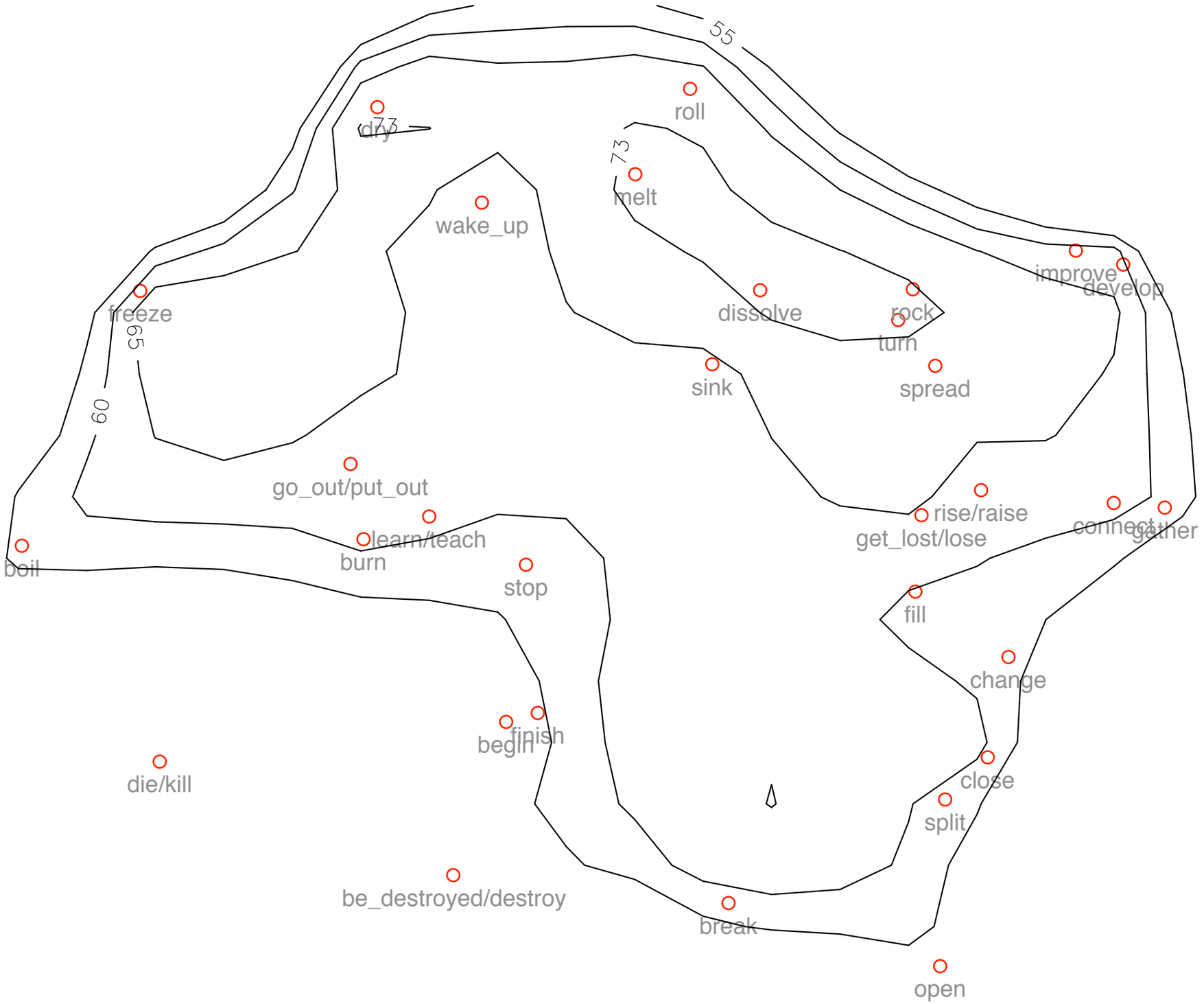
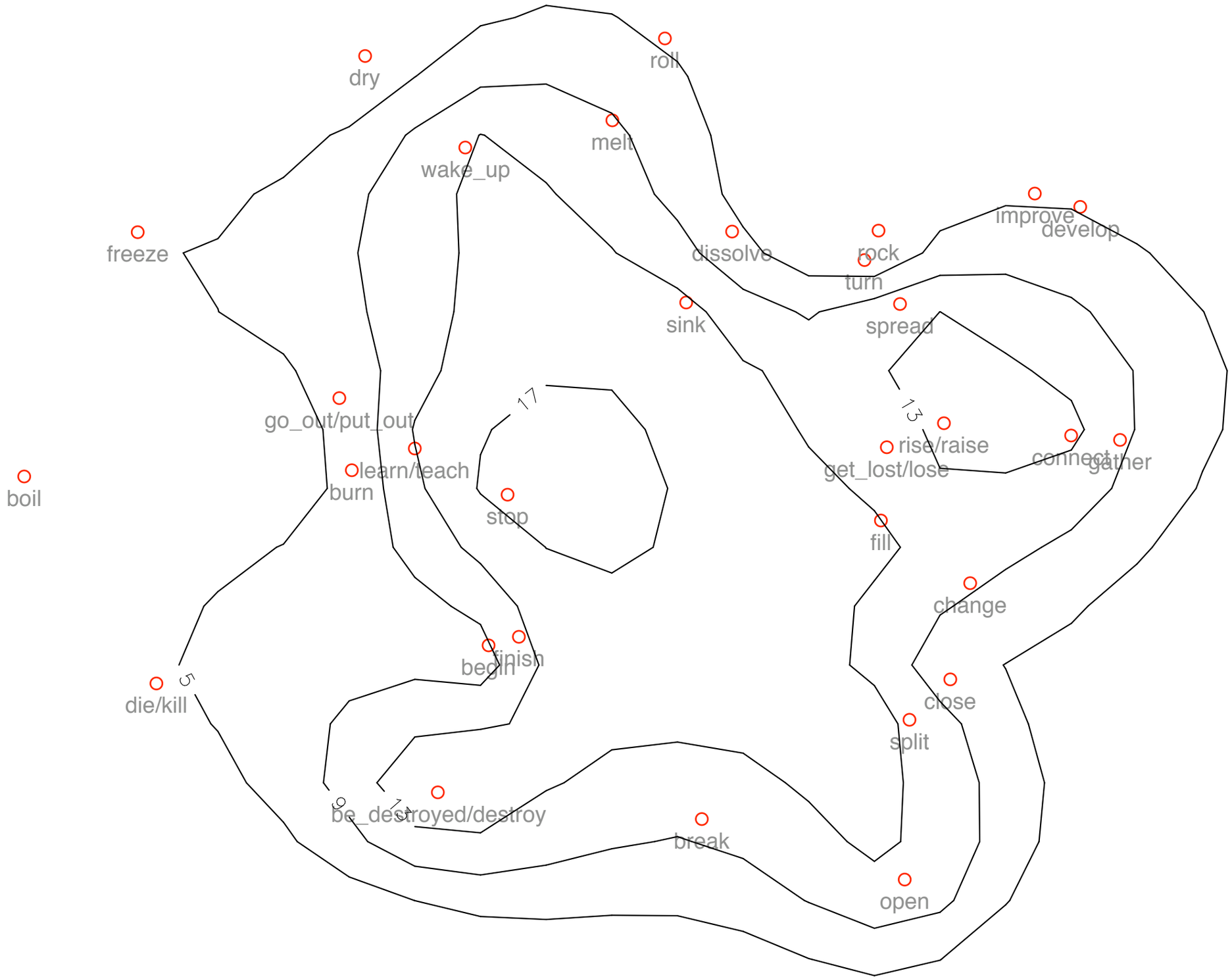
fill
change
17
close
split
finish
begin
die/kill
14
be_destroyed/destroy
break
open

Concatenative



Nonlinear


dry
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melt
wake_up
freeze
dissolve
rock
improve
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turn
sink
spread
go_out/put_out
17
13
rise/raise
connect
gather
get_lost/lose
learn/teach
burn
boil
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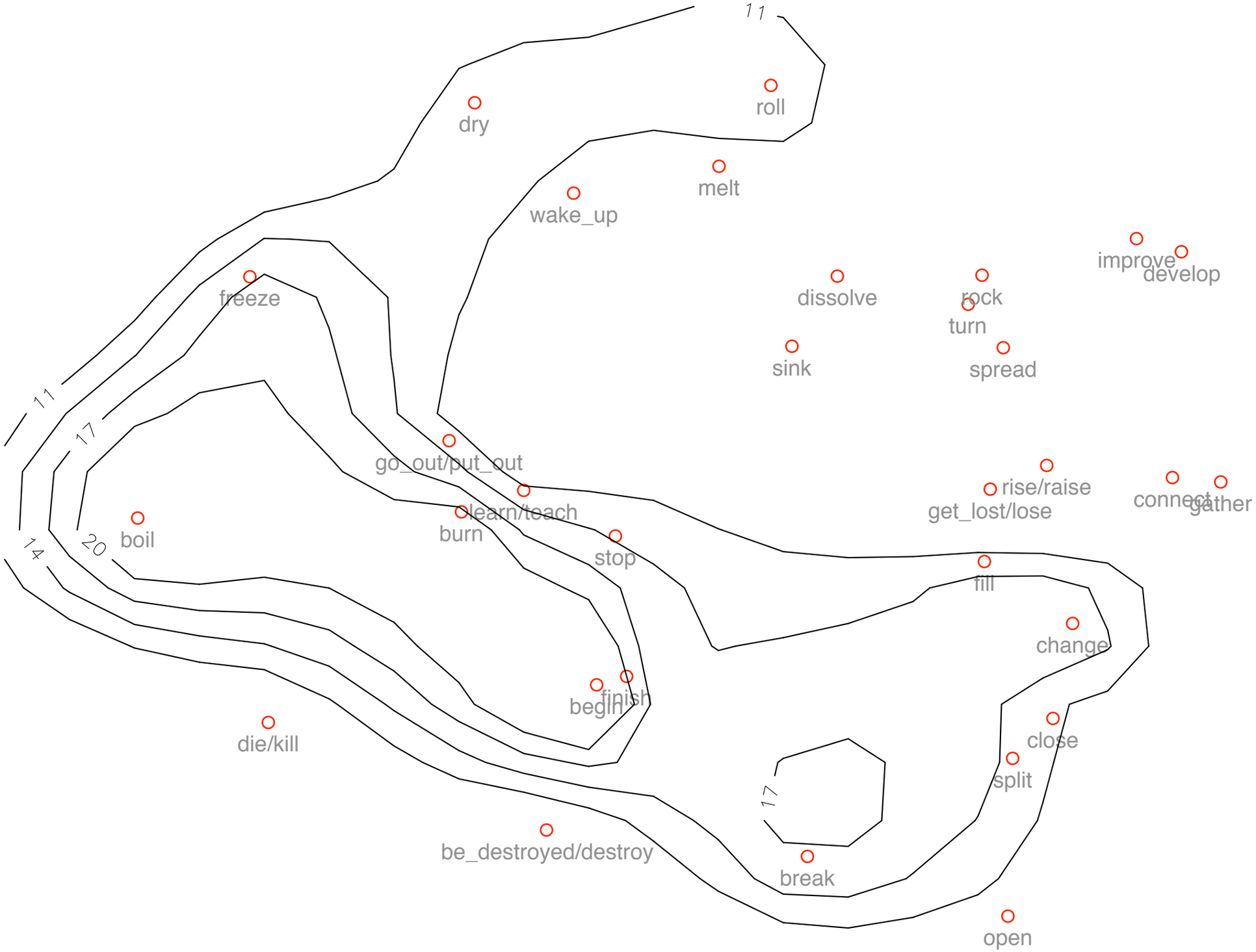
change
finish
begin
5
close
die/kill
split
9
1
be_destroyed/destroy
break
open

Identical


11
dry
roll
melt
wake_up
freeze
dissolve
rock
turn
sink
spread
improve
develop
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go_out/put_out
learn/teach
burn
stop
rise/raise
get_lost/lose
connect
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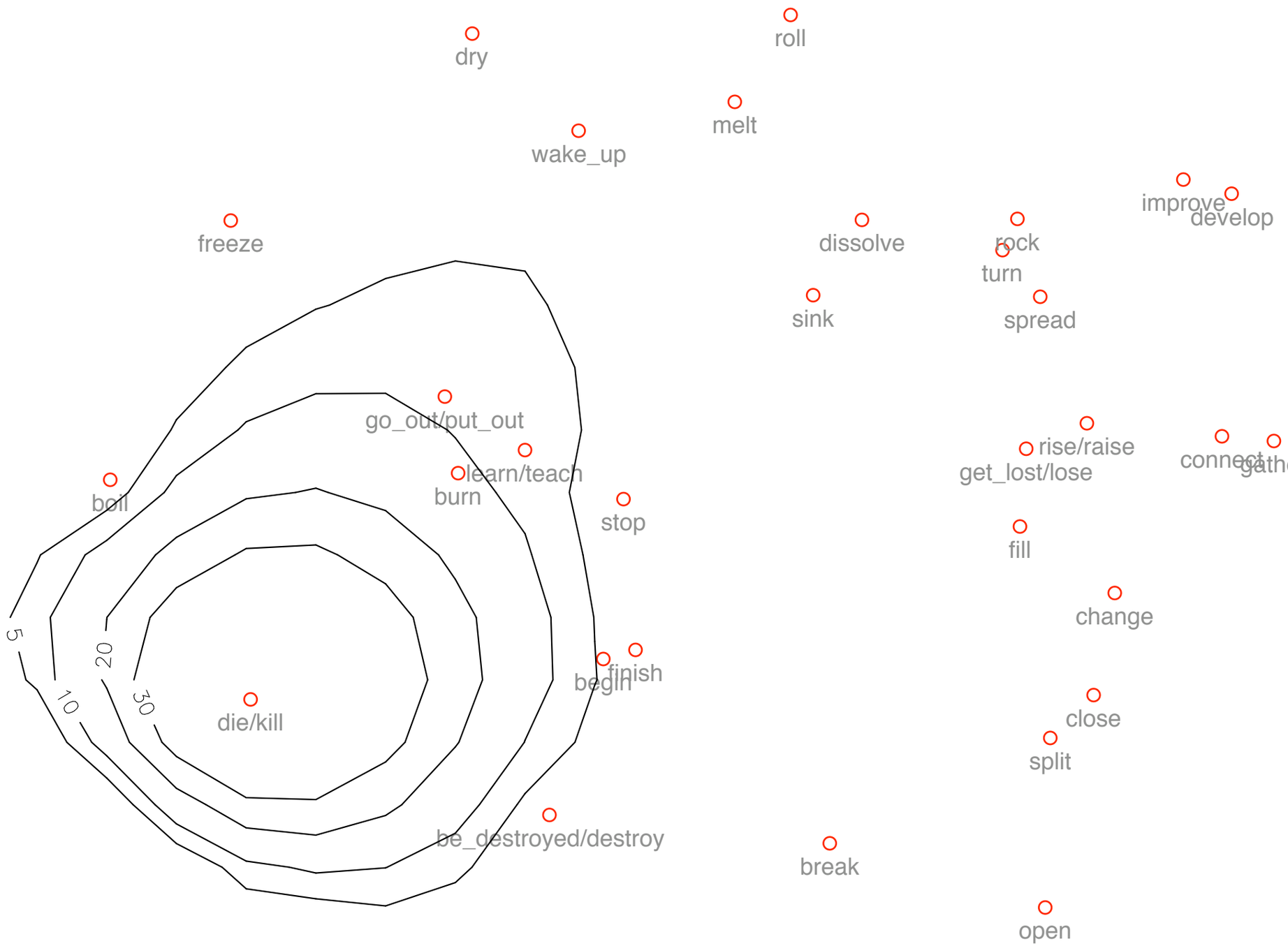
finish
die/kill
close
split
17
be_destroyed/destroy
break
open

Suppletive


dry
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go_out/put_out
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finish
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die/kill
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rise/raise
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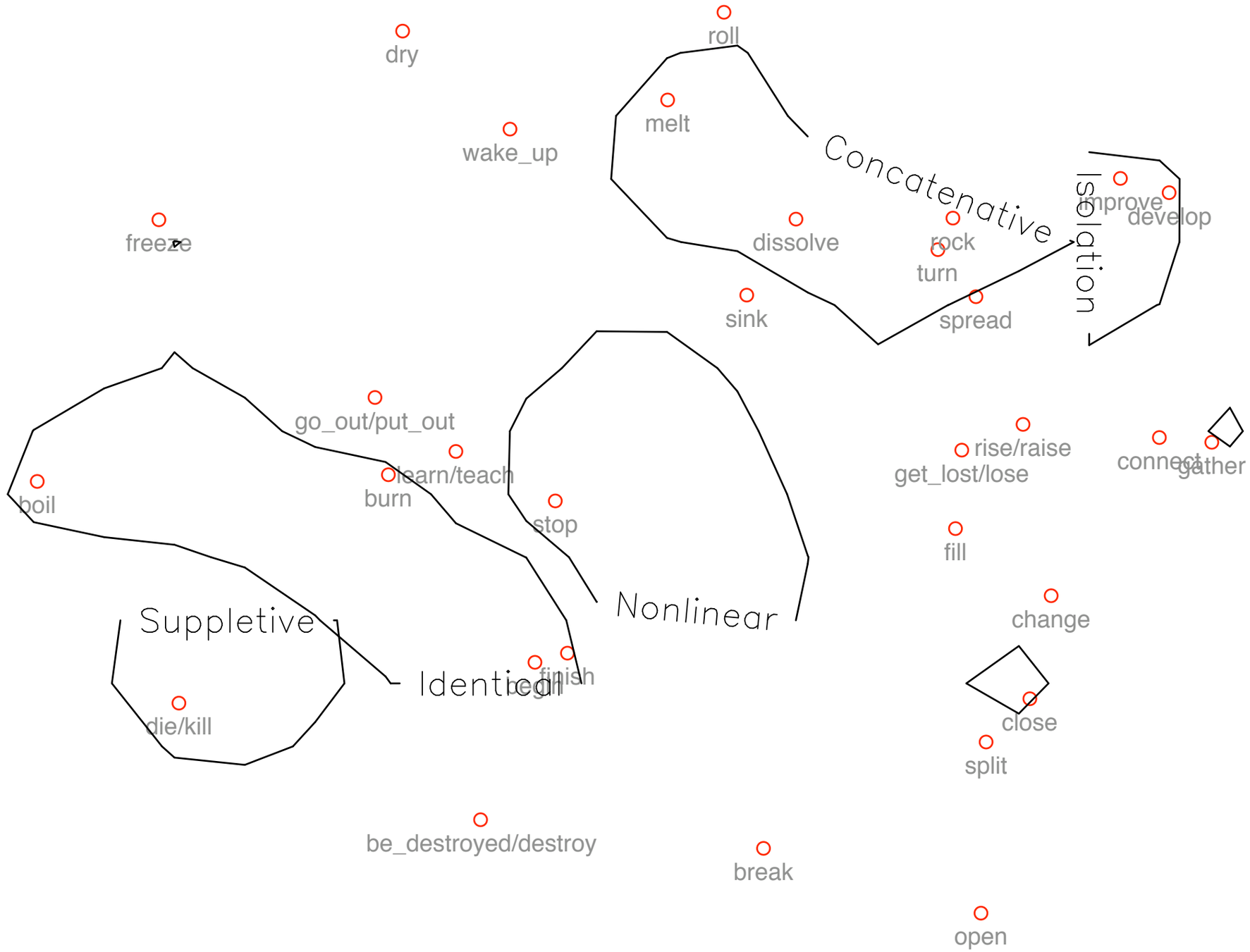
change
close
split
break
open


dry
roll
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wake_up
Concatenative
Isolation
improve
develop
freeze
dissolve
rock
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sink
spread
go_out/put_out
learn/teach
burn
boil
stop
rise/raise
get_lost/lose
connect
gather
fill
change
Suppletive
Nonlinear
Identical
finish
begin
close
split
die/kill
be_destroyed/destroy
break
open

Grammaticalization?

- isolating > concatenative > non-linear > zero
- but: place of suppletion?
- but: not necessarily grammaticalization of construction, but spread of construction
- but: verb hierarchy?

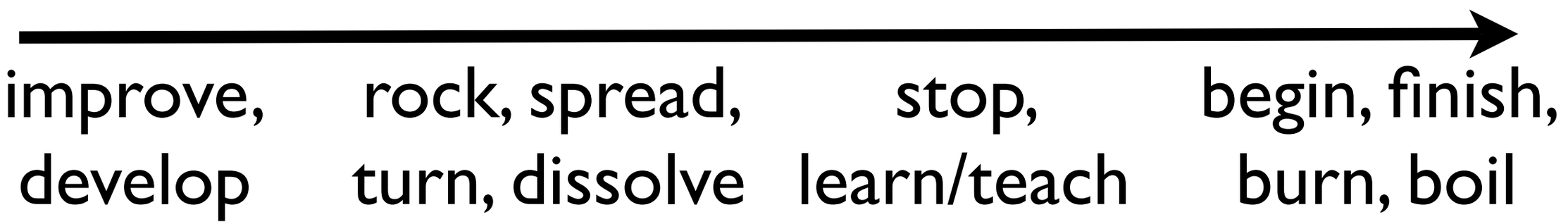
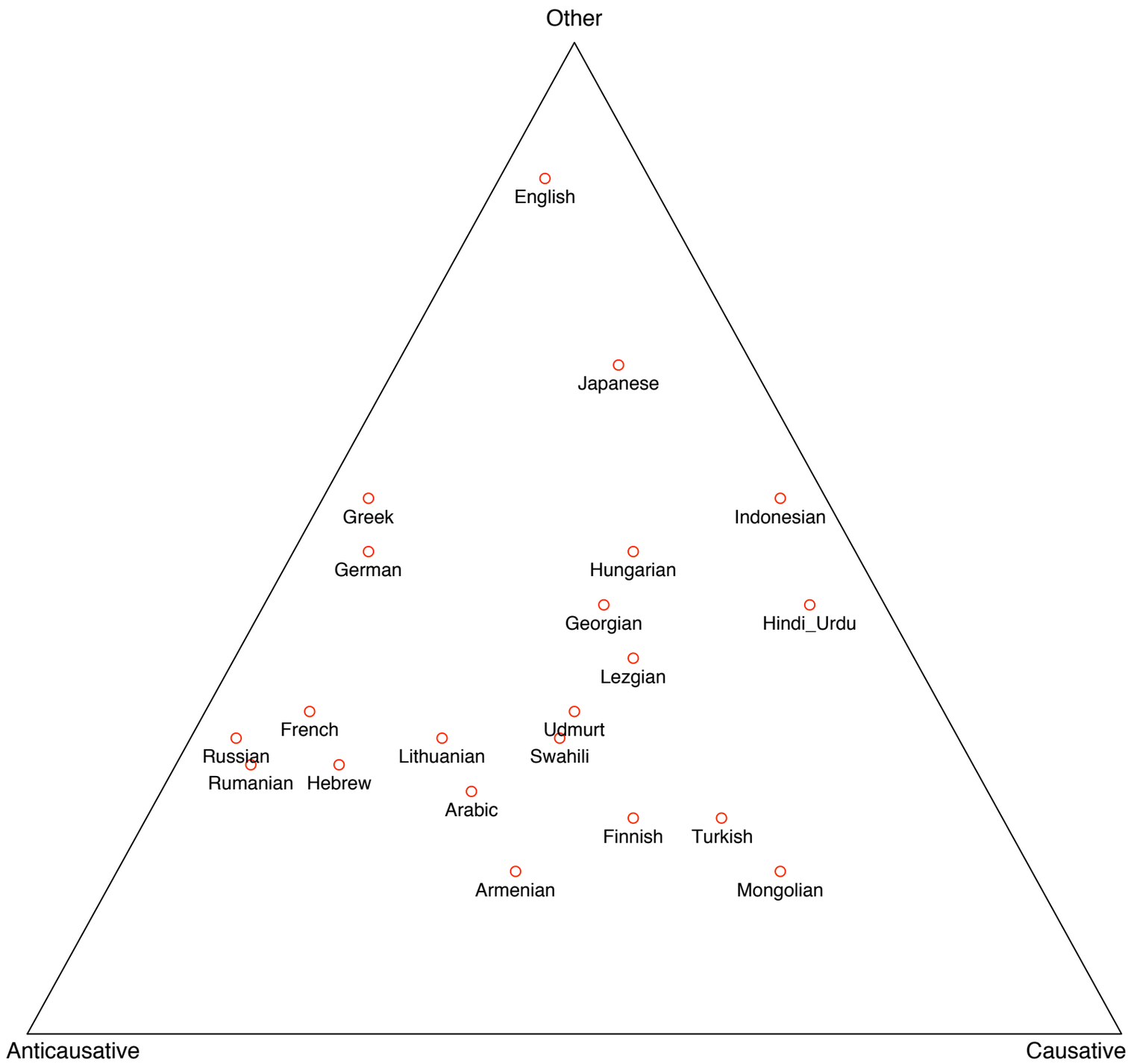


Table 3. *Expression types by language*

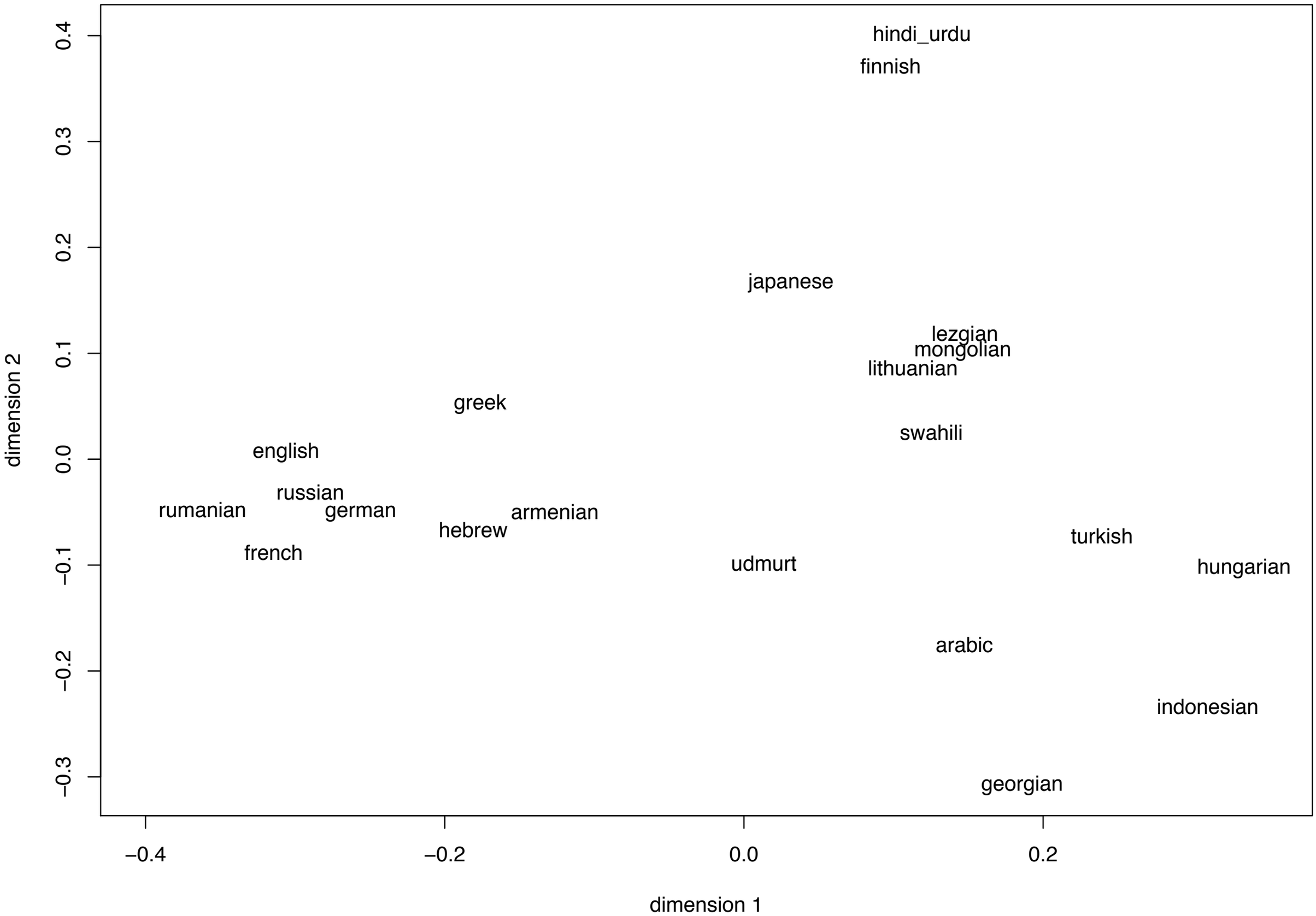
	total	A	C	E	L	S	A/C
Russian	31	23	0	5	0	3	46.00
German	31	14.5	0	4	11.5	1	29.00
Greek	31	13.5	0	0	16.5	1	27.00
Rumanian	30	24	1	0	3	2	24.00
French	31	20.5	2	0	7.5	1	10.25
Lithuanian	31	17.5	6	6	0.5	1	2.92
Hebrew	31	20.5	7.5	2	1	0	2.73
Arabic	31	17	8.5	3	1	1.5	2.00
Georgian	31	9	4.5	15.5	0	2	2.00
Armenian	31	16	8.5	5.5	0	1	1.88
Swahili	31	11	11	8	0	1	1.00
Finnish	28	12	13.5	0.5	0.5	1.5	0.88
Udmurt	31	10.5	12.5	4.5	2.5	1	0.84
Hungarian	31	7	9	12	0	3	0.78
Lezgian	31	8	12	6	5	0	0.66
Hindi-Urdu	31	7.5	14	7.5	2	0	0.54
Turkish	30	9	17.5	2.5	0	1	0.51
Mongolian	31	6	22	2	0	1	0.27
Indonesian	31	0	14	17	0	0	0.04
English	31	2	0	1	25	3	
Japanese	31	3.5	5.5	20.5	0.5	1	
total	636	243	164.5	128.5	69	31	

(Source: Haspelmath 1993)


Other
English
Japanese
Greek
Indonesian
German
Hungarian
Georgian
Hindi_Urdu
Lezgian
French
Udmurt
Russian
Lithuanian
Swahili
Rumanian
Hebrew
Arabic
Finnish
Turkish
Armenian
Mongolian
Anticausative
Causative

Comparing languages without cross-linguistic equivalence?

- Compare language specific categorization
- how similar are two groupings of verbs?
- e.g. *shared information metric*
- works, but shows little structure


hindi_urdu
finnish
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lezgian
mongolian
lithuanian
greek
swahili
english
russian
rumanian
german
armenian
hebrew
turkish
udmurt
hungarian
french
arabic
indonesian
georgian
0.4
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0.2
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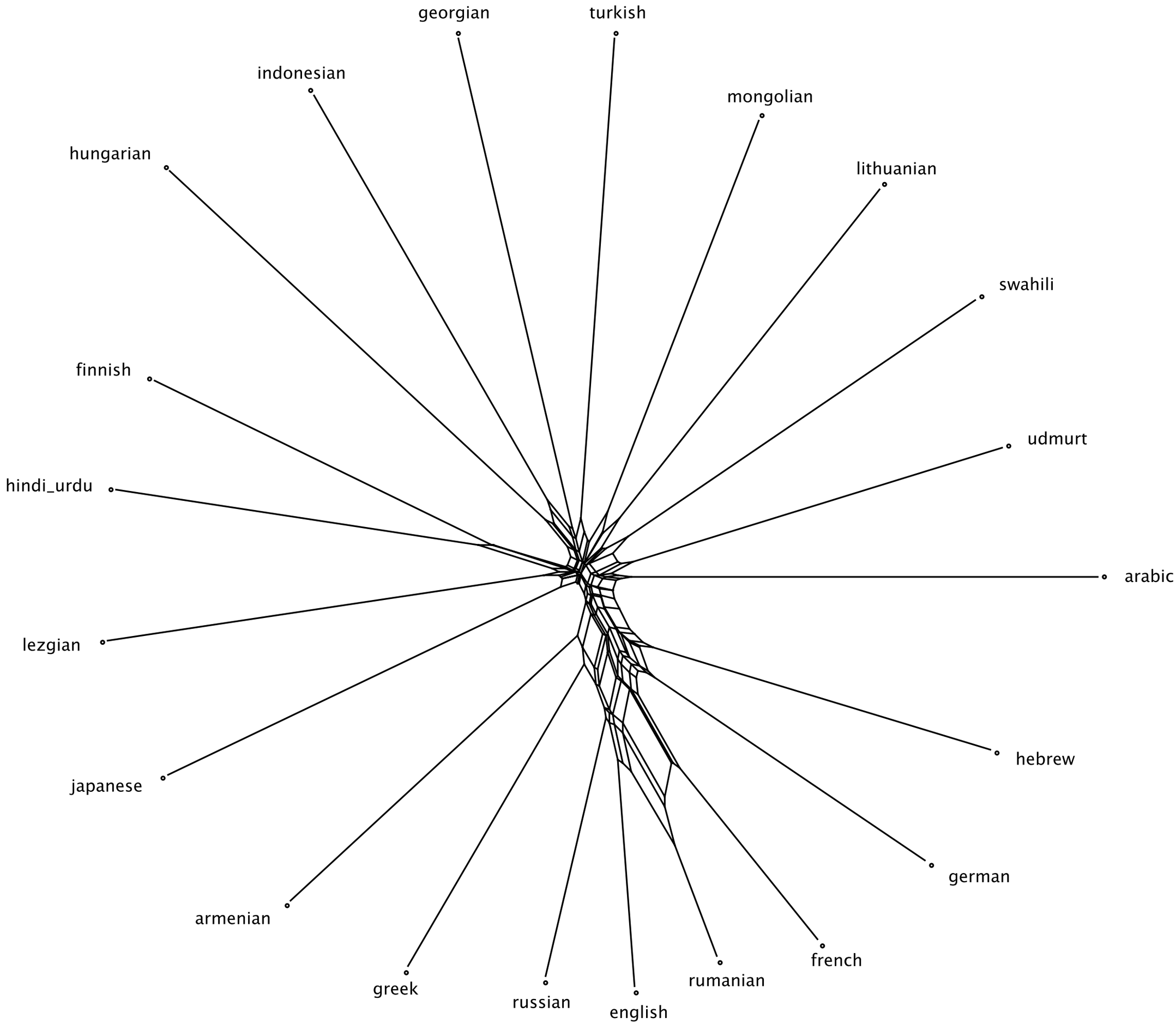
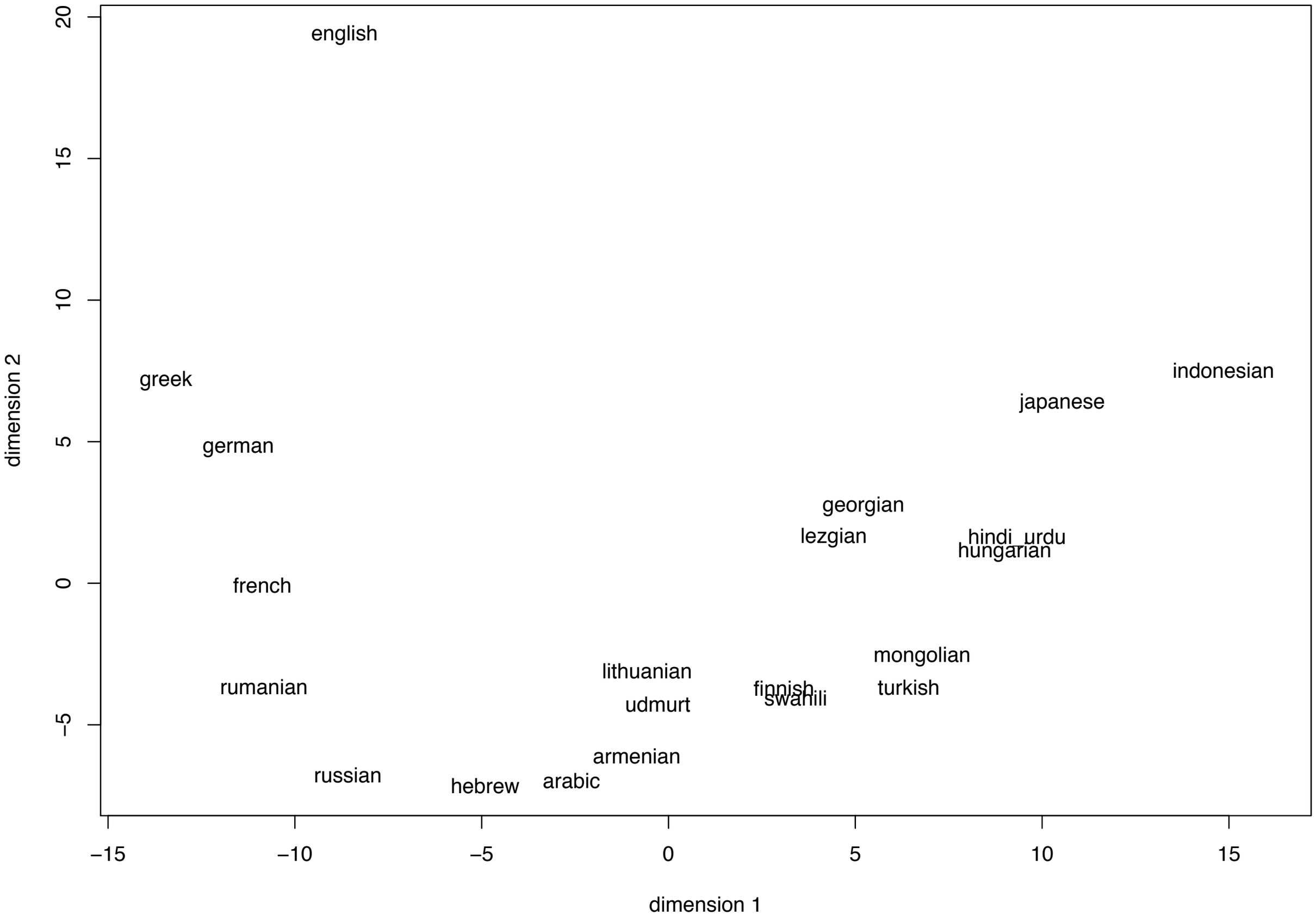
−0.3
dimension 2
−0.4
−0.2
0.0
0.2
dimension 1


georgian
turkish
indonesian
mongolian
hungarian
lithuanian
swahili
finnish
udmurt
hindi_urdu
arabic
lezgian
hebrew
japanese
german
armenian
french
greek
rumanian
russian
english

Using a bit typology ...

- Compare two languages using Haspelmath's categorization (suppletive, labile, anticausative, causative, equipollent)
- Count number of verbs with different categories in both languages
- This is a typological distance


english
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french
mongolian
lithuanian
rumanian
finnish
turkish
swahili
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russian
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dimension 2
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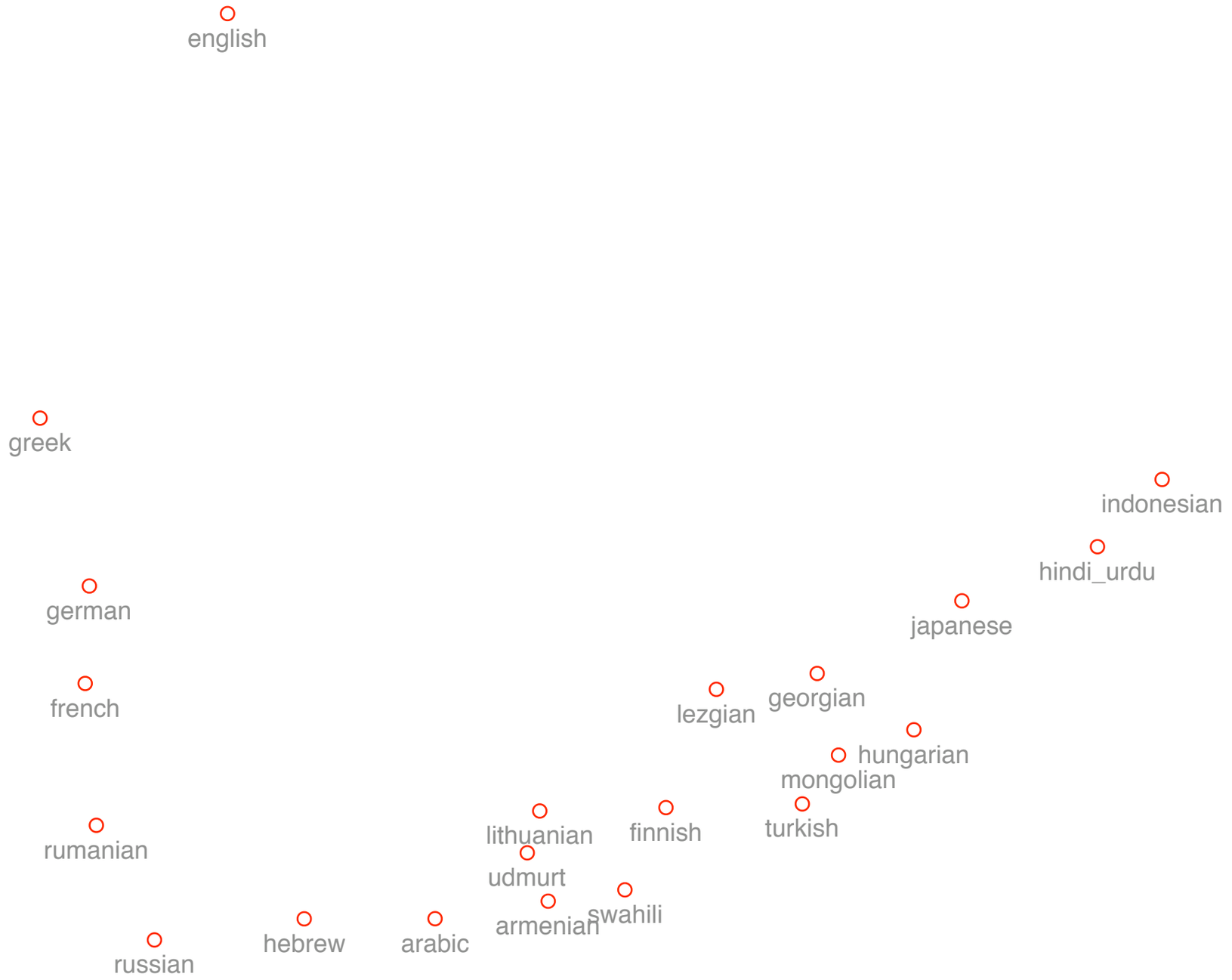
english
greek
indonesian
hindi_urdu
german
japanese
french
georgian
lezgian
hungarian
mongolian
lithuanian
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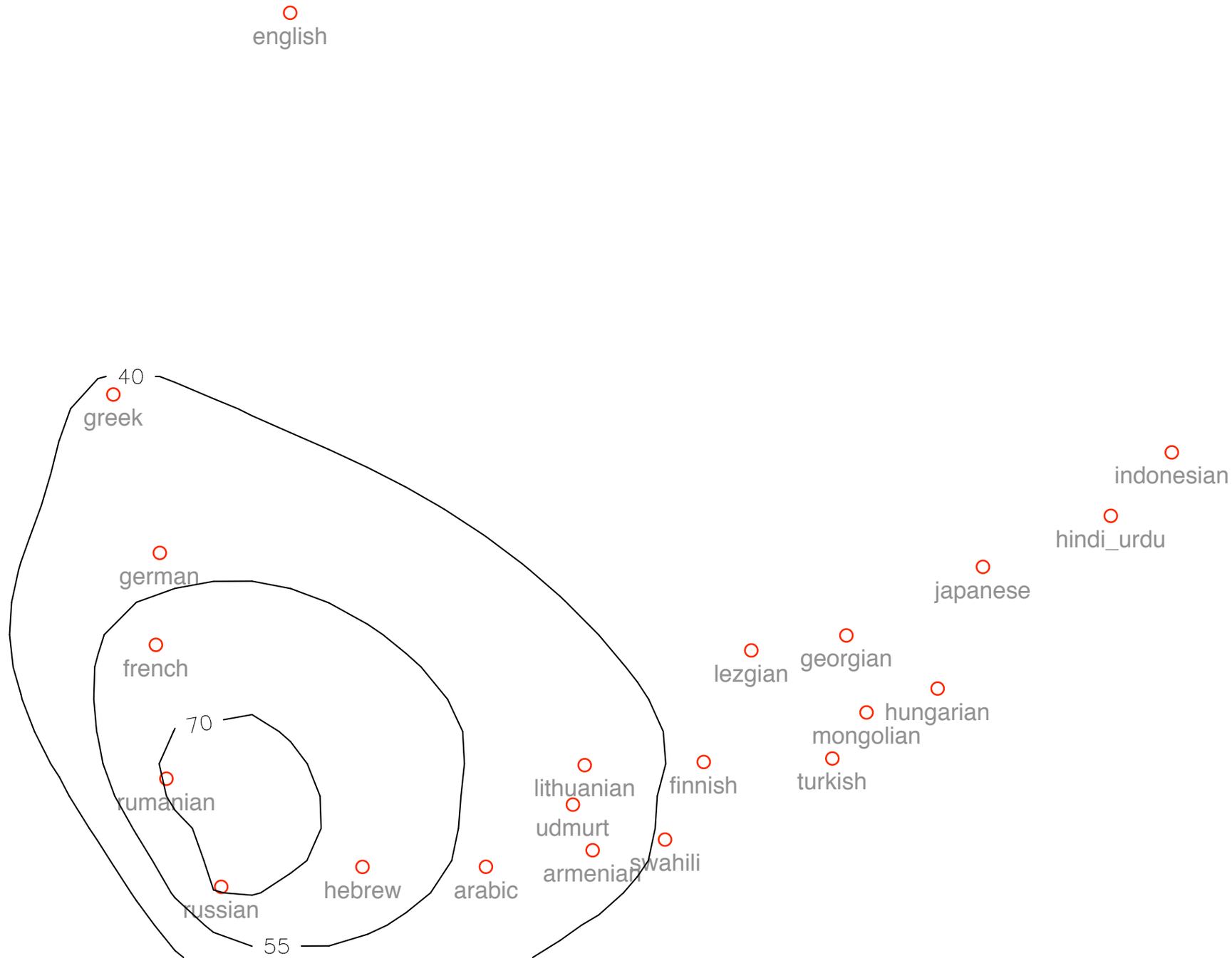
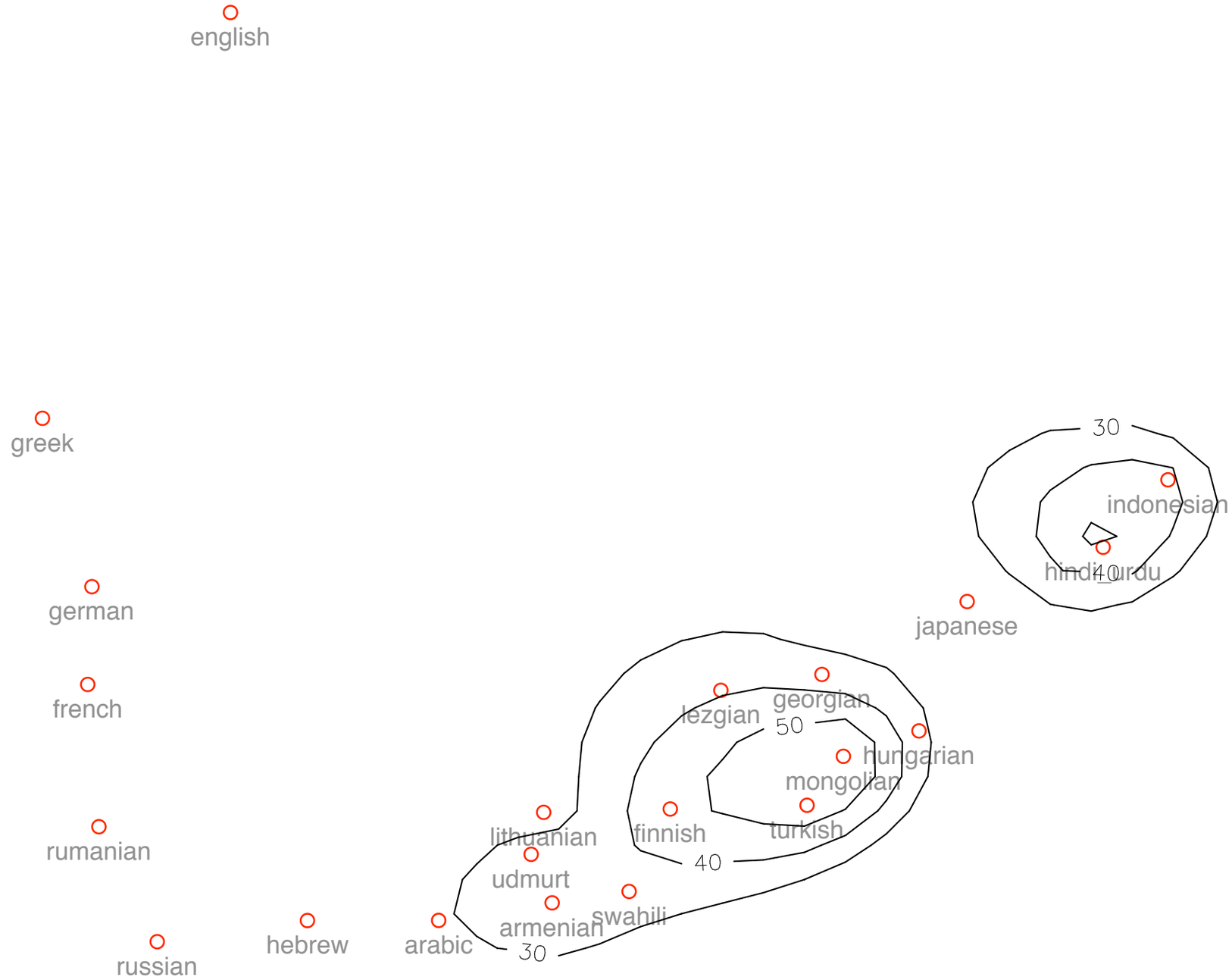
turkish
rumanian
udmurt
swahili
armenian
hebrew
arabic
russian

Anticausative



Causative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french
rumanian
russian
hebrew
arabic
armenian
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lezgian
georgian
hungarian
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turkish
swahili
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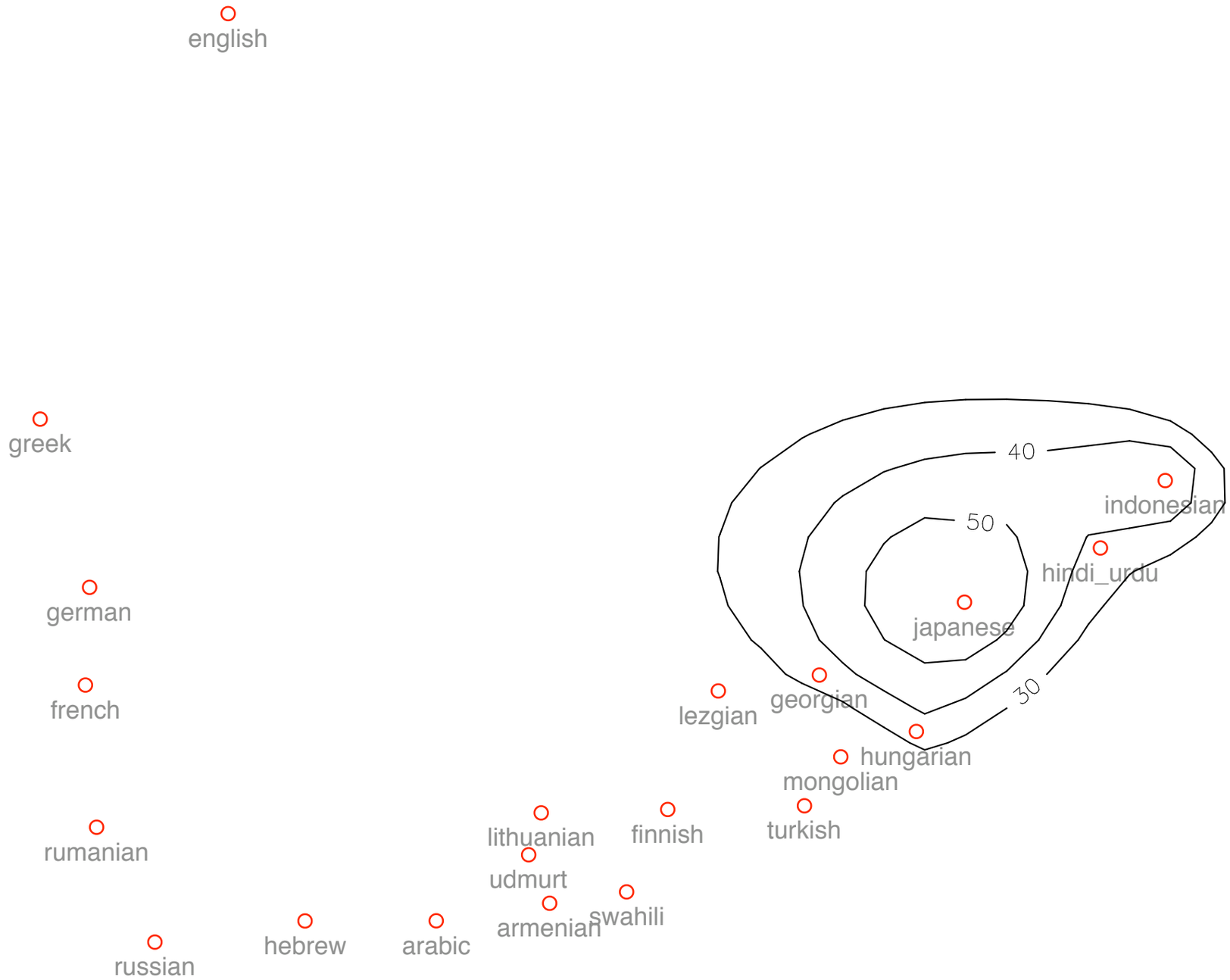
indonesian
hindi
urdu
30
40
50
30
40
30

Equipollent



Identical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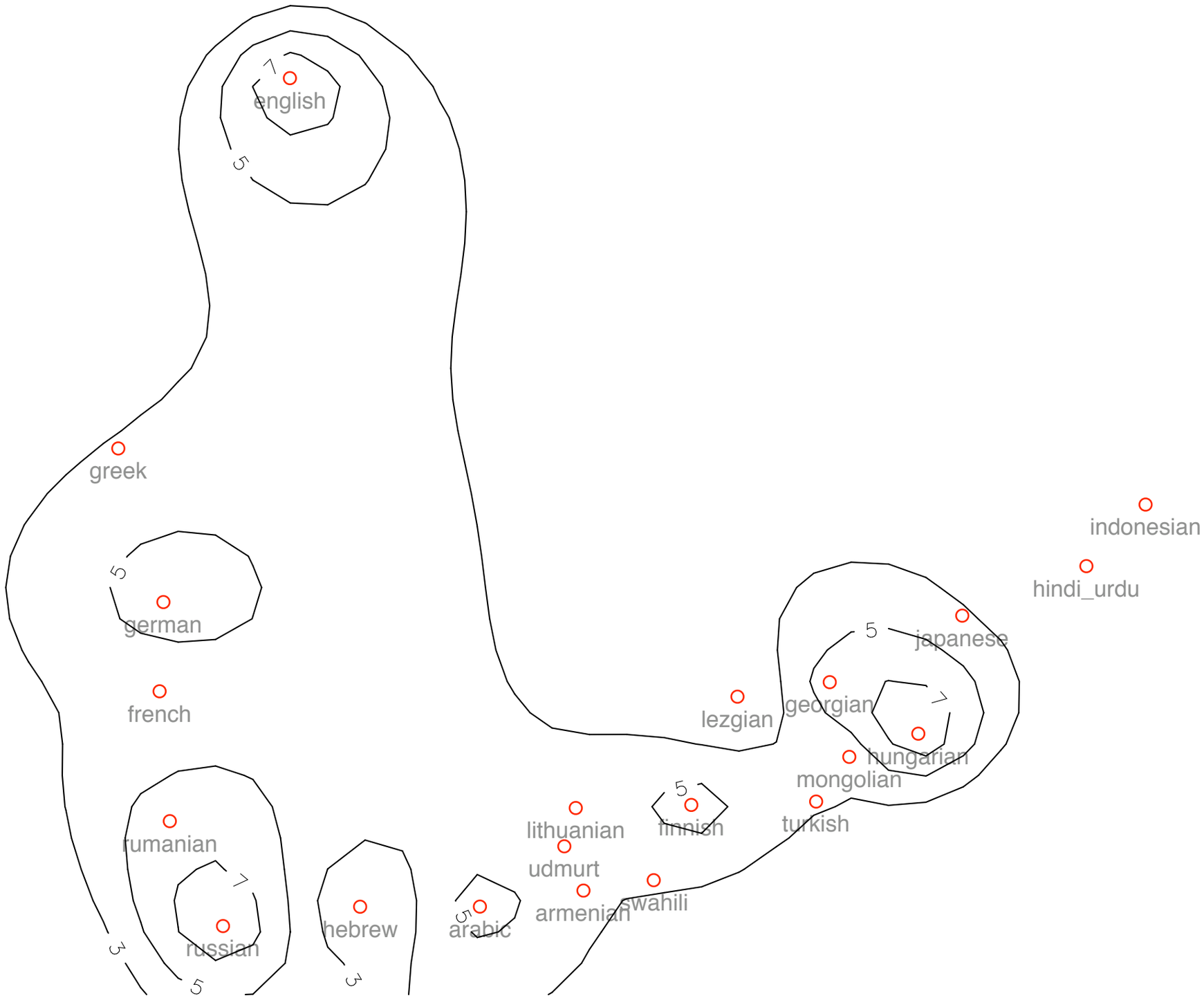
Suppletive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armenian
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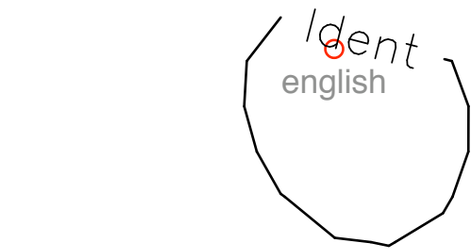
hindi_urdu


Ident
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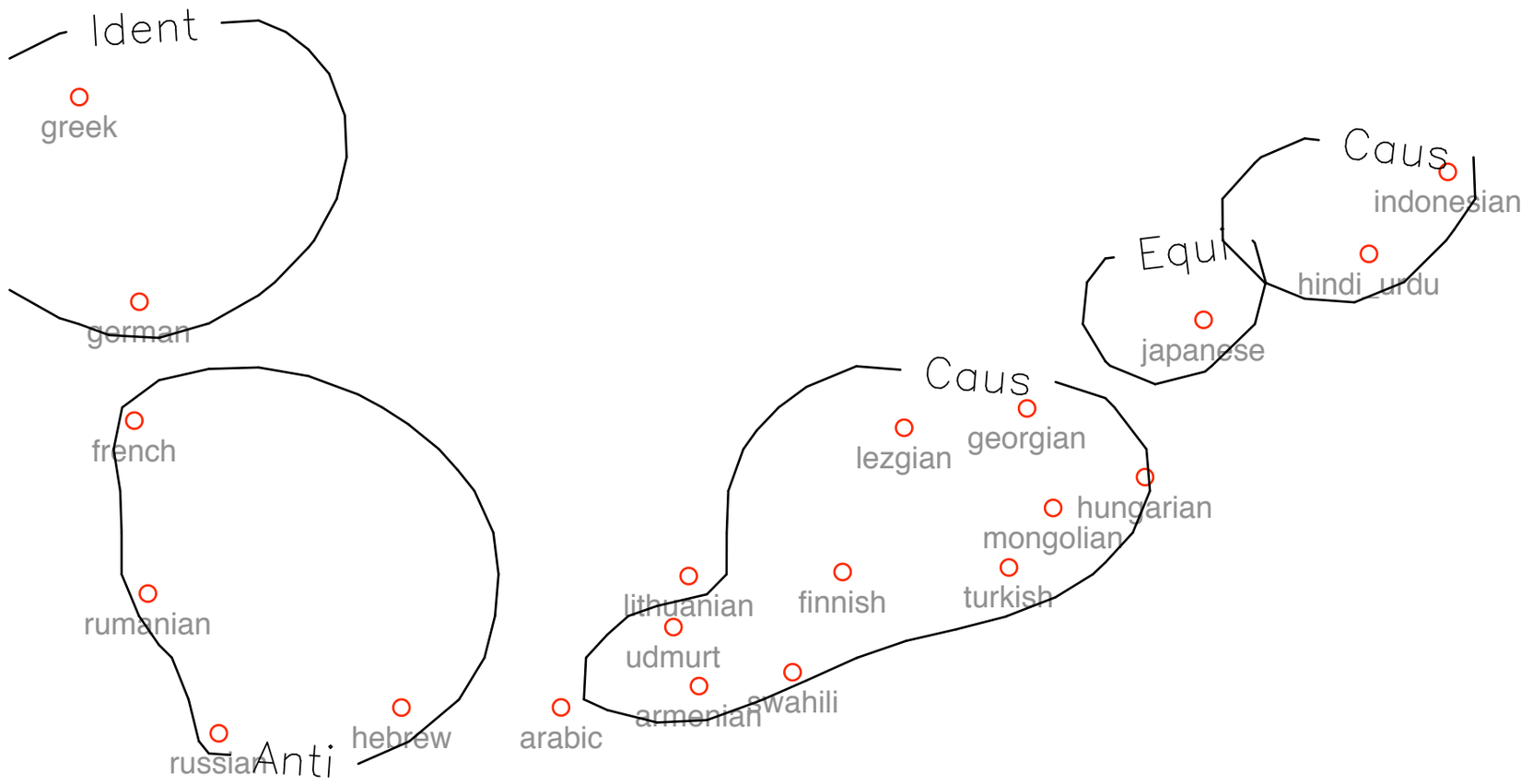
Ident
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german
Caus
indonesian
Equi
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turkish
finnish
lithuanian
udmurt
armenian
swahili
arabic
french
rumanian
russian
Anti
hebrew

Language preferences

- Labile closely linked to Anticausative
- Equipollent closely linked to Causative
- Developmental preference hierarchy:

Labile - Anticausative - Causative - Equipollent