



# Function words in social media: Why small words speak loudly

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# Acknowledgements

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Disclosure: Pennebaker is co-owner of LIWC, a commercial text analysis software product.



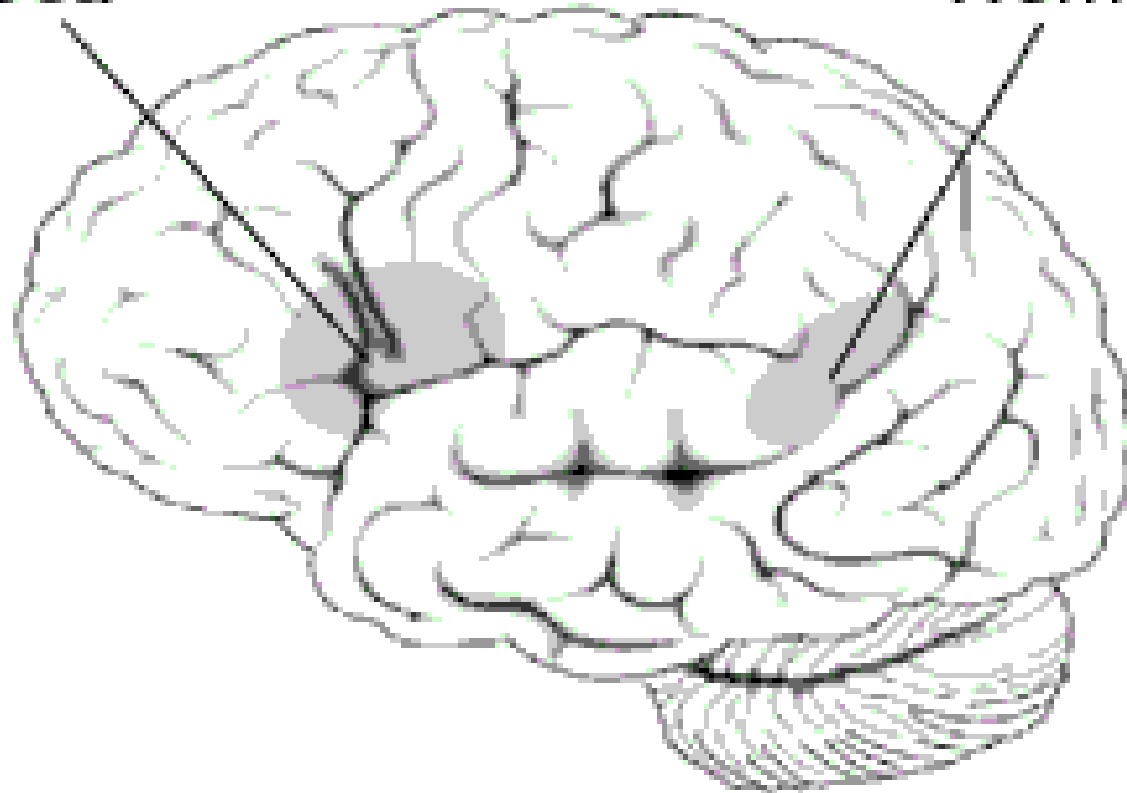
# Function Words in English (% of total words)

	<b>Talking</b>	<b>Blogs</b>	<b>Science</b>
Personal pronouns	13.1	10.6	0.81
Impersonal pronouns	7.39	5.41	2.36
Articles	4.31	5.95	7.57
Prepositions	9.35	12.3	13.0
Conjunctions	5.60	6.34	4.28
Auxiliary verbs	12.4	9.00	3.92
Negations	2.92	1.78	0.40
Quantifiers	2.23	2.79	1.93
Common adverbs	6.22	5.46	1.35
Total function words	57.9	55.5	34.8



Broca

Wernicke



Front

Left Side View

Back



- In the aforementioned picture an elderly woman is about to speak to a middle aged woman who looks condescending and calculating.
- I see an old woman looking back on her years remembering how it was to be beautiful and young.
- The old woman is a witch or something. She looks kinda like she is coaxing the young one to do something.



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# Word use and psychological processes

- The individual
  - Demographics and personality
  - Emotional state and reactions
  - Thinking style: Categorical vs. narrative
- Human relationships: Language style matching
  - Status
  - Liking and loving
  - Group cohesiveness and productivity
- Community, culture, and history



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## Sylvia Plath:

I shut my eyes and all the world drops dead;  
I lift my lids and all is born again.  
(I think I made you up inside my head.)

...

I fancied you'd return the way you said,  
But I grow old and I forget your name.  
(I think I made you up inside my head.)

I should have loved a thunderbird instead;  
At least when spring comes they roar back again.  
I shut my eyes and all the world drops dead.  
(I think I made you up inside my head.)

## Denise Levertov:

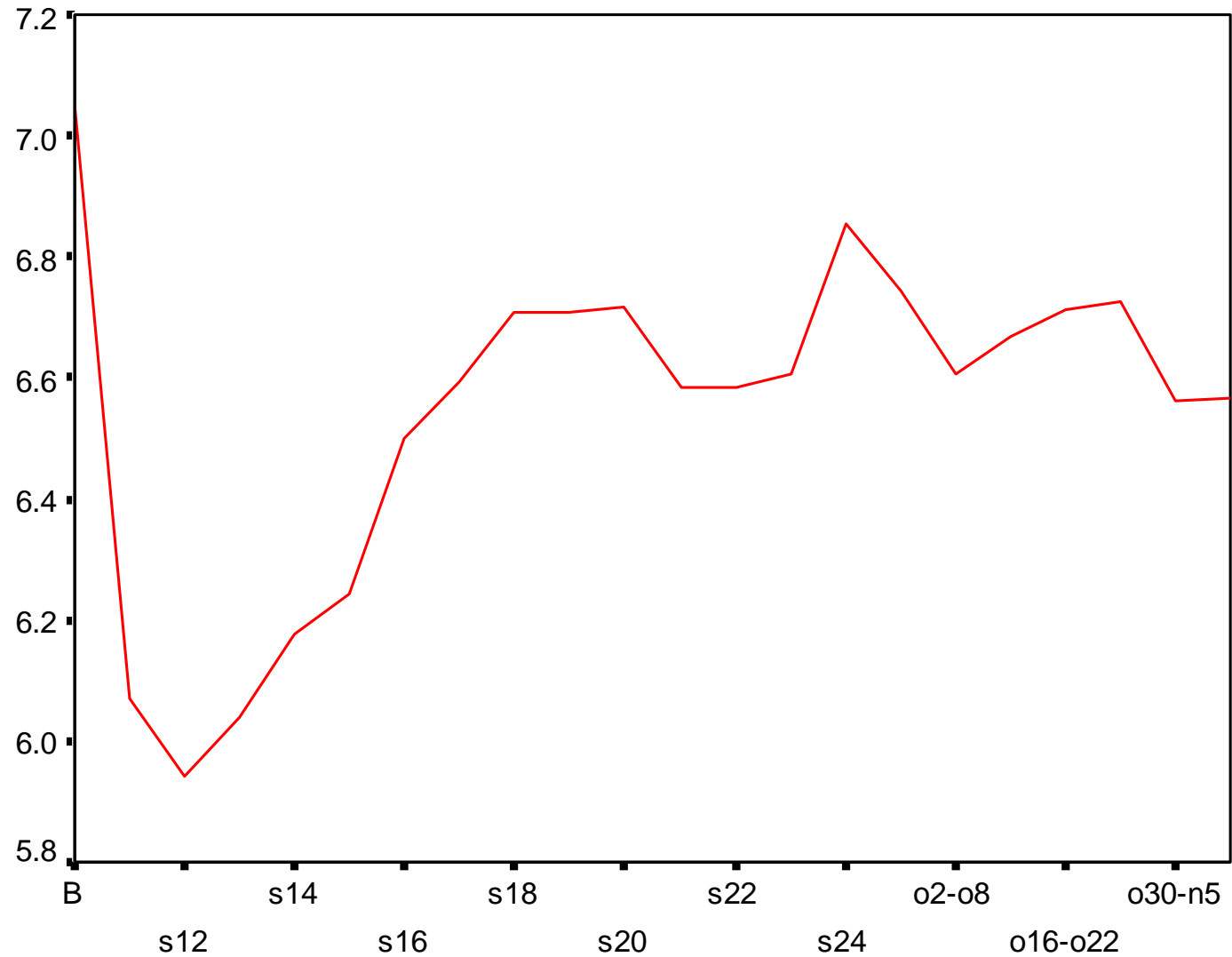
The ache of marriage:  
thigh and tongue, beloved,  
are heavy with it,  
it throbs in the teeth

We look for communion  
and are turned away, beloved,  
each and each

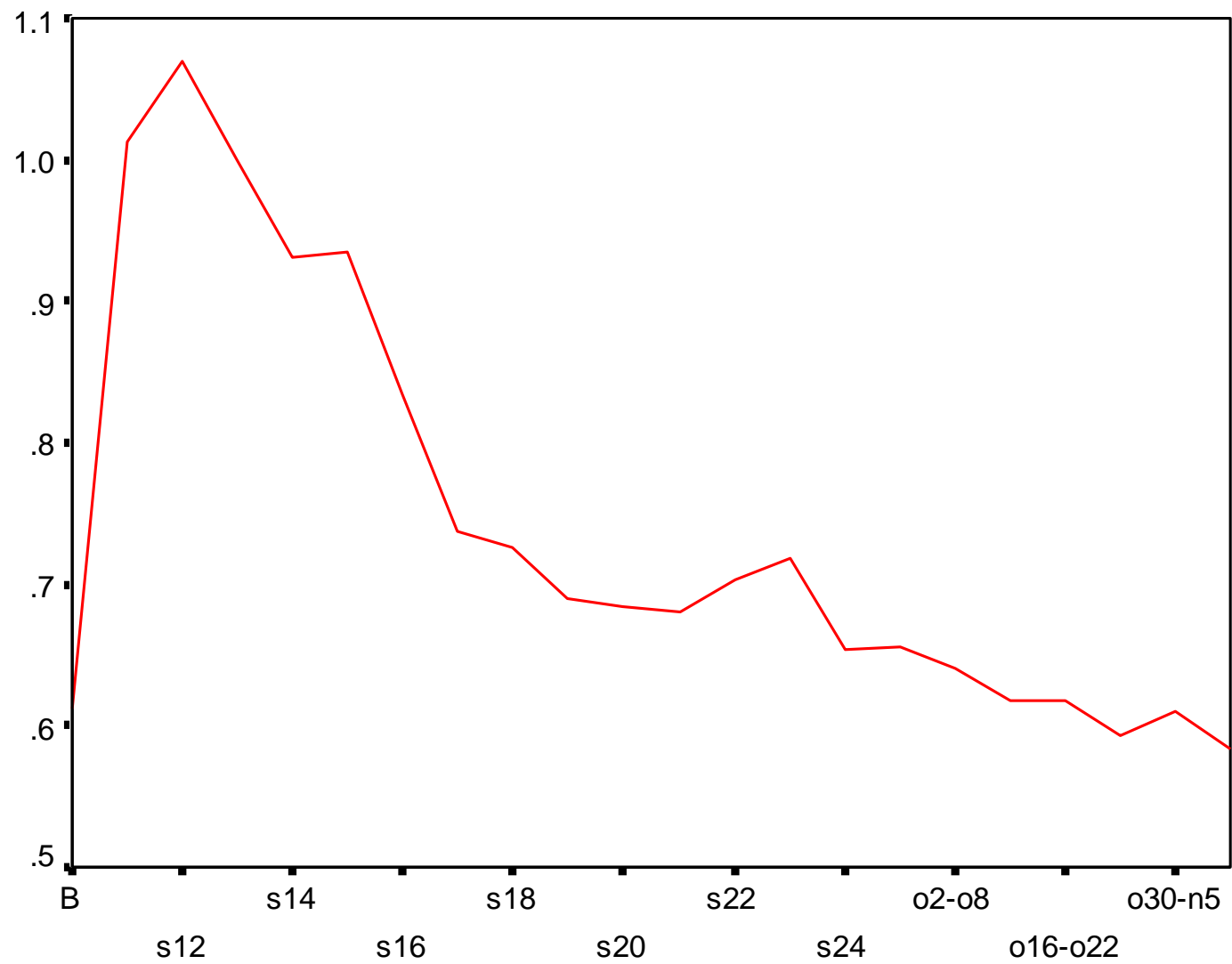
It is leviathan and we  
in its belly looking for joy, some joy  
not to be known outside it

two by two in the ark of  
the ache of it.

# LiveJournal.com Study: I, me, my

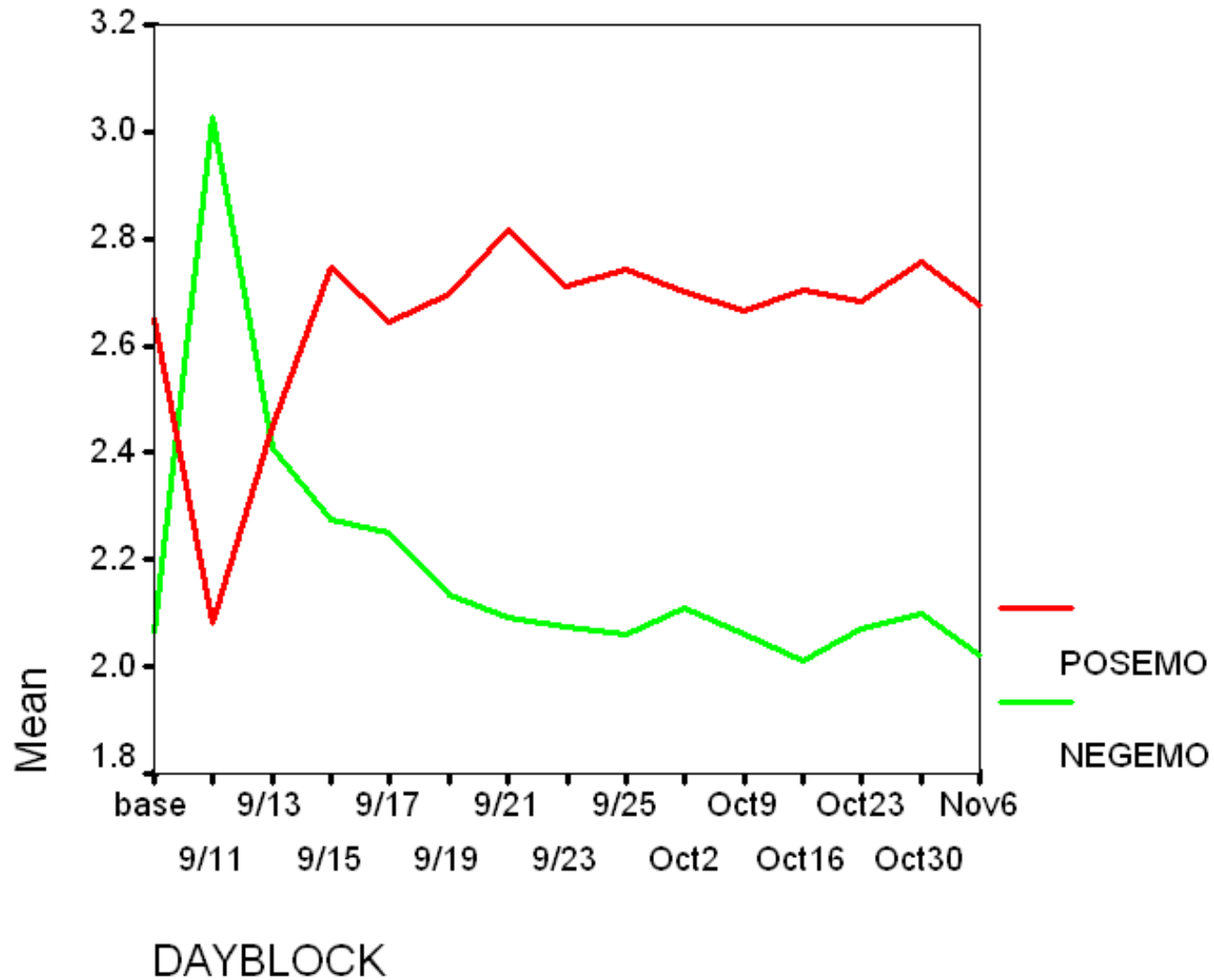


# LiveJournal.com: We, us, our





# LiveJournal.com : Positive and negative emotion words





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# Final thoughts

- Towards a broader appreciation of words
- Function words: Do they shape or reflect psychological state?
- Take a social psychologist to lunch
- You are safe



# Additional information

[www.psy.utexas.edu/Pennebaker](http://www.psy.utexas.edu/Pennebaker)

[www.LIWC.net](http://www.LIWC.net)

[www.utpsyc.org](http://www.utpsyc.org)

[www.analyzewords.com](http://www.analyzewords.com)

[www.SecretLifeOfPronouns.com](http://www.SecretLifeOfPronouns.com)

[Pennebaker@mail.utexas.edu](mailto:Pennebaker@mail.utexas.edu)

***Microsoft***





# Language Style Matching (LSM)

Personal pronoun (ppron):

$$= 1 - \text{abs}(\text{ppron1} - \text{ppron2}) / (\text{ppron1} + \text{ppron2})$$

Impersonal pronoun (ipron):

$$= 1 - \text{abs}(\text{ipron1} - \text{ipron2}) / (\text{ipron1} + \text{ipron2})$$

Prepositions (prep):

$$= 1 - \text{abs}(\text{prep1} - \text{prep2}) / (\text{prep1} + \text{prep2})$$

...

LSM = mean of function word LSMs



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# Original Words

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