

Identifying effective, user-friendly spelling and grammar checkers

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Spell checkers are not perfect!

- US study in 1996 found that :
 - 26% of words were not correctly suggested by spell checkers
 - Students didn't correctly identify a further 27% of errors even with a spell checker.
 - If correct word appeared 1st in the suggestion list then students selected 83.5% of the time
- current spell checkers (both mainstream and for dyslexic users) fail to correct the majority of complex errors

Majority of spell checkers fail for dyslexic users because:

- unable to suggest the correct spelling for severe or non-phonetic errors
- provide no support for real-word errors e.g. there/their or from/form
- do not correct for incorrect word usage or punctuation for users with low English skills

Passage, highlighted words corrected using Word 2007 context spell and grammar checker

One year later I got we a wife, I said to my wife I have got a nuff money to buld a slaughtouse I arsed the cousall if I cod have some land to billed a slaughtouse on the counsall replid saying that I cod, so I roat to one of the biggest billding ferman and arsed if they would billed me a slaughtouse, they replid saying that they would billd me a New Slaughtouse, 20 years later I had nuff money to retier on so I gave the farm, and the slaughtouse and all of the animl, to my son.

One year later I got we a wife, I said to my wife I have got a nuff money to build a slaughtouse I arsed the cousall if I cod have some land to build a slaughtouse on the council replied saying that I cod, so I roat to one of the biggest building ferman and arsed if they would billed me a slaughtouse, they replied saying that they would billd me a New Slaughtouse, 20 years later I had nuff money to retire on so I gave the farm, and the slaughtouse and all of the animl, to my son.

Some spelling error examples...

attacking spelt as ataken

being spelt as beyen

compulsory spelt as compalasy

emotion spelt as amoshen

Why are checkers failing?

- Looking for simple errors first...
- Dyslexic users are unable to proof read real-word errors without support
- Correct grammar usage may not be understood
- Dyslexic users are less likely to identify the correct spelling if it appears further down the suggestion list

What happens when checkers fail? The user...

- does not notice!
- has to look up the correction through other sources...
 - the web
 - paper or electronic dictionaries or thesaurus
 - notes or text book
- relies on others to help...



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Developing a checker for the dyslexic user: The Developers' perspective

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Speech therapist,
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Henrik Karlsson
Windows programmer

Bodil Andersson
Speech therapist,
dyslexia consultant

Anders Holtsberg
Algorithm developer,
PhD in mathematical statistics

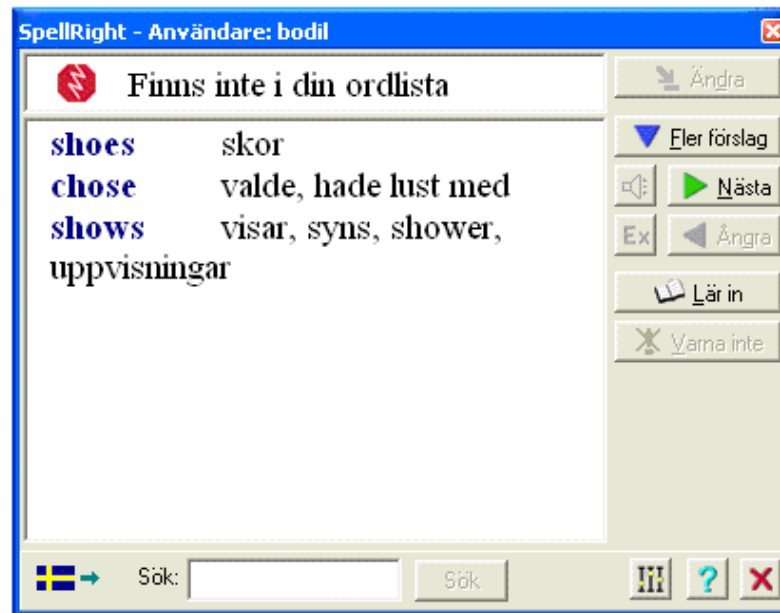
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“SpellRight”,

Versions for Swedish, Danish and Norwegian users of English available so far. English for English speakers under development.

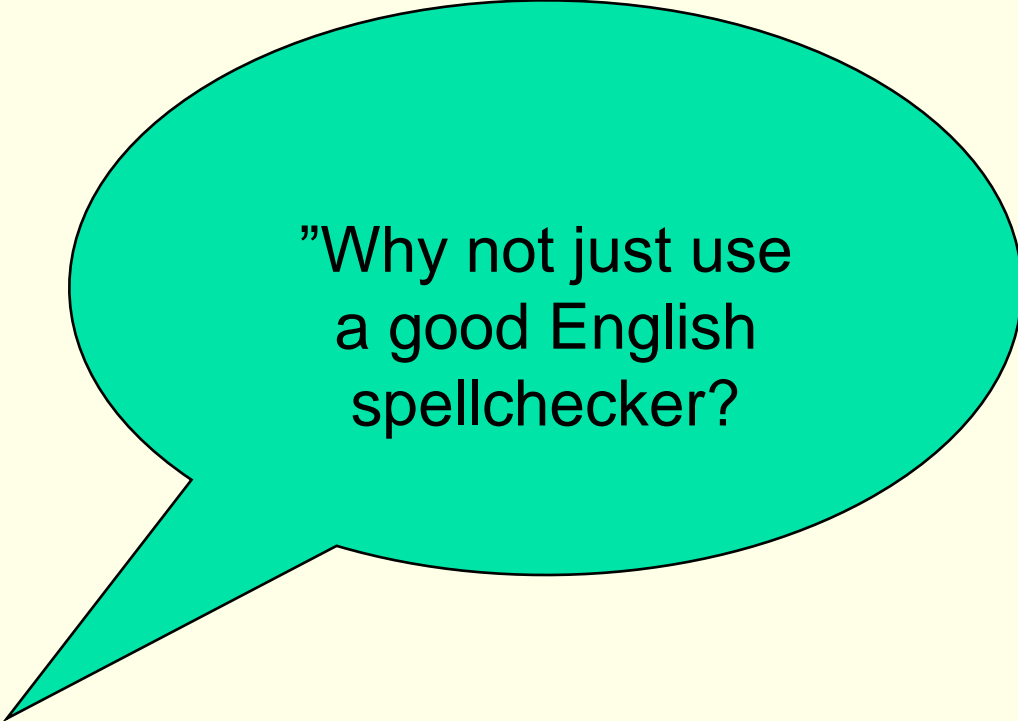

*He bought some new **shus***




- Simple interface
- Picks up very deviant spellings
- One suggestion at the time – click for more suggestions
- Possible to use TTS with the program
- Based on fast, clever algorithms and phonetic rules

A big **igell** in the sky.





"Why not just use
a good English
spellchecker?"



1. Second language users of English make errors different to those made by native speakers

aouer (our/hour)

djöni (journey)

ikuli (equally)

2. ...and second language based grammar errors:

I am interested of football.

He work hard.

3. Different and smaller vocabulary.

(c.f. "bib")

4. Dyslexia is an additional load.

Some examples from a dictation test with Swedish dyslexics



TARGET WORD	1	2
	djadje	gude
	tcho	tjou
	wares	wourse
	marich	marrides

Some examples from a dictation test with Swedish dyslexics



TARGET WORD	1	2
judge	djadje	gude
chore	tcho	tjou
worse	wares	wourse
marriage	marich	marrides

Authentic English spelling errors - guess the target words



TARGET WORD	SPELLING ERROR
	yoost
	citon
	cwater
	chrafs

Authentic English spelling errors - guess the target words



TARGET WORD	SPELLING ERROR
used	yoost
kitten	citon
quarter	cwater
giraffes	chrafs

Authentic English spelling errors - guess the target words

used		yoost
kitten		cion
quarter		cwater
giraffes		chrafs

SpellRight corrects all of these errors

Passage, purple highlighted words additional corrections or grammar queries from SpellRight

One year later I got we a wife, I said to my wife I have got a nuff money to buld a slaughtouse I arsed the cousall if I cod have some land to billed a slaughtouse on the counsall replid saying that I cod, so I roat to one of the biggest billding ferman and arsed if they would billed me a slaughtouse, they replid saying that they would billd me a New Slaughtouse, 20 years later I had nuff money to retier on so I gave the farm, and the slaughtouse and all of the animl, to my son.

One year later I got we a wife, I said to my wife I have got a enough money to build a slaughterhouse I arsed the counsall if I could have some land to build a slaughterhouse on the council replied saying that I could, so I wrote to one of the biggest building ferman and arsed if they would build me a slaughterhouse, they replied saying that they would build me a New Slaughterhouse, 20 years later I had enough money to retire on so I gave the farm, and the slaughterhouse and all of the animal, to my son.

Where do we go from here?

- SpellRight is able to **correct non-phonetic and severe** spelling errors better than spell checker developed for English language speakers.
- SpellRight also corrects homophone and grammar errors
 - SpellRight for UK coming soon

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