

## WORDS CONTAINING US STATE ABBREVIATIONS

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In October 1963, the US Postal Service (USPS) introduced two-letter abbreviations for the 50 US state-names. Since that time, only one change has been made: in 1969, at the request of the Canadian postal administration, the abbreviation for Nebraska, originally NB, was changed to NE, to avoid confusion with New Brunswick in Canada. The current abbreviations are listed here:

AL	Alabama	LA	Louisiana	OH	Ohio
AK	Alaska	ME	Maine	OK	Oklahoma
AZ	Arizona	MD	Maryland	OR	Oregon
AR	Arkansas	MA	Massachusetts	PA	Pennsylvania
CA	California	MI	Michigan	RI	Rhode Island
CO	Colorado	MN	Minnesota	SC	South Carolina
CT	Connecticut	MS	Mississippi	SD	South Dakota
DE	Delaware	MO	Missouri	TN	Tennessee
FL	Florida	MT	Montana	TX	Texas
GA	Georgia	NE	Nebraska	UT	Utah
HI	Hawaii	NV	Nevada	VT	Vermont
ID	Idaho	NH	New Hampshire	VA	Virginia
IL	Illinois	NJ	New Jersey	WA	Washington
IN	Indiana	NM	New Mexico	WV	West Virginia
IA	Iowa	NY	New York	WI	Wisconsin
KS	Kansas	NC	North Carolina	WY	Wyoming
KY	Kentucky	ND	North Dakota		

It's possible to find words containing each of the 50 abbreviations in turn – for example, **AL** occurs in **PALE**, **AK** occurs in **FAKE**, and so on.

A more interesting challenge is to find the smallest number of words which between them contain all 50 of the abbreviations. Obviously, it's necessary to find some words which contain more than just one abbreviation. For example, the word **INJECT** contains three of the abbreviations – **IN**, **NJ** and **CT**.

Some of the abbreviations look rather awkward, so it's best to try first to find words containing those abbreviations – in particular, **TX**, **VT** and **WV**. *The Oxford English Dictionary* (OED) contains the proper name **GITXSAN** as a variant of **GITKSAN**, a North American Indian people. But preferable is the uncapitalized **POSTXYPHOID** from *Webster's Second Edition* (W2) – which also contains **ID**, two birds with one stone! As for **VT**, the OED contains several capitalized words – **BEZPOPOVTSY**, **POLOVTSIAN** and **POLOVTSY**. But I prefer the uncapitalized **BERKOVTSI**, the plural of **BERKOVETS**, a Russian unit of weight, which is in

both *Webster's Third* (W3) and the OED. And what about **WV**? W3 and the OED both list the uncapitalized **LOWVELD** (a subtropical region of South Africa), although it's worth noting that W2 has the capitalized **LOWVILLE**.

The next step is to find words with a multiplicity of abbreviations. Particularly useful is **INVARIANCE** (from W3, W2 and OED) which contains the seven abbreviations **IN, NV, VA, AR, RI, IA** and **NC**. There are a few words containing four or five abbreviations – the ones I've used are **CALUMNY (CA, AL, MN and NY)**, **FLAKY (FL, LA, AK and KY)**, **MAZOPATHIA (MA, AZ, PA and HI)**, **MISCONJECTURE (MI, SC, CO, NJ and CT)**, and **NEUROHORMONE (NE twice, OH, OR and MO)**. These five words can be found in one or more of W3, W2 and the OED.

Thus far, that's 31 different abbreviations located in 9 words. How few words can be found to accommodate the remaining 19 abbreviations? My best solution so far is that those 19 abbreviations can be found in 7 words. Thus, my smallest set of words containing all the abbreviations is 16. However, it may be possible to reduce this further. Here is my set of 16 words matched up against the 50 abbreviations, sorted in state-name order:

Alabama	AL	<b>calumny</b>	Montana	MT	<b>warmth</b>
Alaska	AK	<b>flaky</b>	Nebraska	NE	<b>neurohormone</b>
Arizona	AZ	<b>mazopathia</b>	Nevada	NV	<b>invariance</b>
Arkansas	AR	<b>invariance</b>	New Hampshire	NH	<b>unmanhood</b>
California	CA	<b>calumny</b>	New Jersey	NJ	<b>misconjecture</b>
Colorado	CO	<b>misconjecture</b>	New Mexico	NM	<b>unmanhood</b>
Connecticut	CT	<b>misconjecture</b>	New York	NY	<b>calumny</b>
Delaware	DE	<b>gamdeboo</b>	North Carolina	NC	<b>invariance</b>
Florida	FL	<b>flaky</b>	North Dakota	ND	<b>roundaboutness</b>
Georgia	GA	<b>gamdeboo</b>	Ohio	OH	<b>neurohormone</b>
Hawaii	HI	<b>mazopathia</b>	Oklahoma	OK	<b>gemsboks</b>
Idaho	ID	<b>postxyphoid</b>	Oregon	OR	<b>neurohormone</b>
Illinois	IL	<b>willowy</b>	Pennsylvania	PA	<b>mazopathia</b>
Indiana	IN	<b>invariance</b>	Rhode Island	RI	<b>invariance</b>
Iowa	IA	<b>invariance</b>	South Carolina	SC	<b>misconjecture</b>
Kansas	KS	<b>gemsboks</b>	South Dakota	SD	<b>misdemean</b>
Kentucky	KY	<b>flaky</b>	Tennessee	TN	<b>roundaboutness</b>
Louisiana	LA	<b>flaky</b>	Texas	TX	<b>postxyphoid</b>
Maine	ME	<b>misdemean</b>	Utah	UT	<b>roundaboutness</b>
Maryland	MD	<b>gamdeboo</b>	Vermont	VT	<b>berkovtsi</b>
Massachusetts	MA	<b>mazopathia</b>	Virginia	VA	<b>invariance</b>
Michigan	MI	<b>misconjecture</b>	Washington	WA	<b>warmth</b>
Minnesota	MN	<b>calumny</b>	West Virginia	WV	<b>lowveld</b>
Mississippi	MS	<b>gemsboks</b>	Wisconsin	WI	<b>willowy</b>
Missouri	MO	<b>neurohormone</b>	Wyoming	WY	<b>willowy</b>

And here's the 16 words sorted in alphabetical order:

<b>berkovtsi</b>	<b>misconjecture</b>
<b>calumny</b>	<b>misdemean</b>
<b>flaky</b>	<b>neurohormone</b>
<b>gamdeboo</b>	<b>postxyphoid</b>
<b>gemsboks</b>	<b>roundaboutness</b>
<b>invariance</b>	<b>unmanhood</b>
<b>lowveld</b>	<b>warmth</b>
<b>mazopathia</b>	<b>willowy</b>

The 650,000 residents of the District of Columbia might bristle at being omitted from the above challenge. The US Postal Service provides for the obvious abbreviation DC. In addition, the US Postal Service also has two-letter abbreviations for US territories and associated countries - here are eight of them:

AS	American Samoa	MP	Northern Mariana Islands
FM	Federated States of Micronesia	PW	Palau
GU	Guam	PR	Puerto Rico
MH	Marshall Islands	VI	US Virgin Islands

It seems strange that MP was chosen for the Northern Mariana Islands, but it's believed that the MP stands for Mariana Pacific. The PW abbreviation for Palau may be because an archaic English form of the name was Pelew.

The original 50-abbreviation challenge can now be extended to this larger set of 59 abbreviations. So far, my smallest set of words including all 59 abbreviations stands at 21, but I suspect this can be reduced. Two of the words are needed to account for just two of the abbreviations, **MADCAP** and **WARMTH**. **MADCAP** also contains **MA** and **CA**, but these are already catered for in other words; similarly, **WARMTH** also contains **WA** and **AR**, but these too are catered for elsewhere. Anyway, here are my 21 words matched up against the 59 abbreviations, sorted in state-name/territory/country order:

Alabama	AL	<b>calumny</b>	Montana	MT	<b>warmth</b>
Alaska	AK	<b>flaky</b>	Nebraska	NE	<b>neurohormone</b>
American Samoa	AS	<b>gascromh</b>	Nevada	NV	<b>invariance</b>
Arizona	AZ	<b>mazopathia</b>	New Hampshire	NH	<b>unmanhood</b>
Arkansas	AR	<b>invariance</b>	New Jersey	NJ	<b>misconjecture</b>
California	CA	<b>calumny</b>	New Mexico	NM	<b>unmanhood</b>
Colorado	CO	<b>misconjecture</b>	New York	NY	<b>calumny</b>
Connecticut	CT	<b>misconjecture</b>	North Carolina	NC	<b>invariance</b>
Delaware	DE	<b>gamdeboo</b>	North Dakota	ND	<b>roundaboutness</b>
District of Columbia	DC	<b>madcap</b>	Northern Mariana Islands	MP	<b>improving</b>
Federated States of Micronesia	FM	<b>engulfment</b>	Ohio	OH	<b>neurohormone</b>
Florida	FL	<b>flaky</b>	Oklahoma	OK	<b>gemsboks</b>

Georgia	GA	<b>gamdeboo</b>	Oregon	OR	<b>neurohormone</b>
Guam	GU	<b>engulfment</b>	Palau	PW	<b>upward</b>
Hawaii	HI	<b>mazopathia</b>	Pennsylvania	PA	<b>mazopathia</b>
Idaho	ID	<b>postxyphoid</b>	Puerto Rico	PR	<b>improving</b>
Illinois	IL	<b>willowy</b>	Rhode Island	RI	<b>invariance</b>
Indiana	IN	<b>invariance</b>	South Carolina	SC	<b>misconjecture</b>
Iowa	IA	<b>invariance</b>	South Dakota	SD	<b>misdemean</b>
Kansas	KS	<b>gemsboks</b>	Tennessee	TN	<b>roundaboutness</b>
Kentucky	KY	<b>flaky</b>	Texas	TX	<b>postxyphoid</b>
Louisiana	LA	<b>flaky</b>	US Virgin Islands	VI	<b>improving</b>
Maine	ME	<b>misdemean</b>	Utah	UT	<b>roundaboutness</b>
Marshall Islands	MH	<b>gascromh</b>	Vermont	VT	<b>berkovtsi</b>
Maryland	MD	<b>gamdeboo</b>	Virginia	VA	<b>invariance</b>
Massachusetts	MA	<b>mazopathia</b>	Washington	WA	<b>upward</b>
Michigan	MI	<b>misconjecture</b>	West Virginia	WV	<b>lowveld</b>
Minnesota	MN	<b>calumny</b>	Wisconsin	WI	<b>willowy</b>
Mississippi	MS	<b>gemsboks</b>	Wyoming	WY	<b>willowy</b>
Missouri	MO	<b>neurohormone</b>			

And here's the 21 words sorted in alphabetical order:

<b>berkovtsi</b>	<b>mazopathia</b>
<b>calumny</b>	<b>misconjecture</b>
<b>engulfment</b>	<b>misdemean</b>
<b>flaky</b>	<b>neurohormone</b>
<b>gamdeboo</b>	<b>postxyphoid</b>
<b>gascromh</b>	<b>roundaboutness</b>
<b>gemsboks</b>	<b>unmanhood</b>
<b>improving</b>	<b>upward</b>
<b>invariance</b>	<b>warmth</b>
<b>lowveld</b>	<b>willowy</b>
<b>madcap</b>	

Readers are encouraged to improve on both of my collections of 16 and 21 words – go to it!