

Cognitive Modes Detectable with Task-based fMRI:
Anatomical Comparisons between Modes

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Table of Contents

Re-Evaluation (REEV).....	5
Bilateral Eyeball Sitters.....	5
Bilateral space Invaders Shooters.....	7
Above the Line	9
Sad Face Antennae & Flushed Cheeks.....	11
X Marks the Spot	13
Language Network (LN)	16
Rail Shot Coronal	16
Tears Blown Leftwards & Eyebrows.....	18
Rail Shot Axial.....	20
Disappearing Face.....	22
Maintaining Internal Attention (MAIN)	24
Left-Lateralized Upper Triangle	24
Left-Lateralized Lower Triangle	26
Right-Handed Crab Claw.....	28
Found a Peanut	30
Multiple Demand Network (MDN)	32
Jumping Jack Flash.....	32
Ape Nostrils.....	34
Flexing Hands	36
Wipe Your Mouth Bear Triple Jam	38
Initiation (INIT)	41
Raised Eyebrows.....	41
When I'm 64.....	43
De Divina Proportione Front Guy	46
Response (One-Handed 1RESP & Two-Handed 2RESP)	48

Bat.....	48
Thalamus Kite Surfer.....	51
Butterfly.....	53
Compact Crab Claw.....	57
Default Mode Networks (TDMN; DMNB vs NDMN; DMNA)	59
Snowman Nose vs. Mouth	59
Medial Temporal Dots- Prominent vs. Muted.....	60
T-Bird vs. Stickman.....	61
Tripod vs. Baby Dragon.....	62
Mandibles vs. Laughing Clown	63
Angel Wings-Muted vs. Prominent	64
Auditory Perception (AUD)	65
Thing 1.....	65
Thing 2.....	67
Auditory Attention for Response (AAR)	69
Happy 28 th Birthday Long Face/Right Angle.....	69
On Fire.....	71
Small Smile.....	73
Focus on Visual Features (FoVF)	75
Stay Puft	75
Wishbone.....	77

Legend of Example Networks

1. Re-Evaluation
 - a) Lavigne Schiz Bull 2019 3 - Exemplar
 - b) Lavigne NeuroImage 2015 1
 - c) Percival MS_SA 3
 - d) Qiyang ATTN 3
 - e) Sanford Diss TSI Task alone 3 (may be internal attention)
2. Language Network
 - a) Wong et al. in press 3
 - b) Lavigne & Woodward 2017 2
 - c) Chantal MS-TGT-SA 1
 - d) Sara MS 2
3. Maintaining Internal Attention
 - a) Sanford TGT_WM 3
 - b) Addis 3
4. Multiple Demand Network
 - a) Lavigne OTT 1
 - b) Lavigne Animal BADE 5
 - c) Lariviere_MS 1
 - d) Addis 2
5. Initiation
 - a) Cortex TGT_WM 2
 - b) Manoach 1
 - c) Metzak 2
6. Right handed/Two handed response
 - a) ABADE 4
 - b) Sanford WM_TGT 1
7. Two handed response (merged with right handed response)
 - a) Goghari 1
 - b) Sanf diss TSI 2
8. Traditional DMN / DMNB
 - a) Addis 4
 - b) Goghari 2
 - c) Lavigne HBM 2
 - d) Lavigne Schiz Bull 2
 - e) LD 1

- f) Metzak mmcc 2
- g) MS 3
- h) TSI_TGT 3
- i) Whitman 2
- j) WM_TGT 4

9. Novel DMN / DMNA

- a) MMCC 2
- b) MS 2

10. Auditory Perception

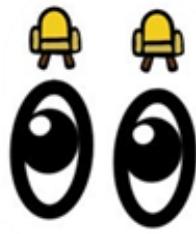
- a) MS_TGT_SA 5
- b) WM_TGT 7

11. Auditory Attention for Response

- a) Lavigne 2017 HBM 1
- b) HCP Social 2
- c) Sanford Diss Chap 5 C3
- d) Vina merged C2

12. Focus on Visual Features

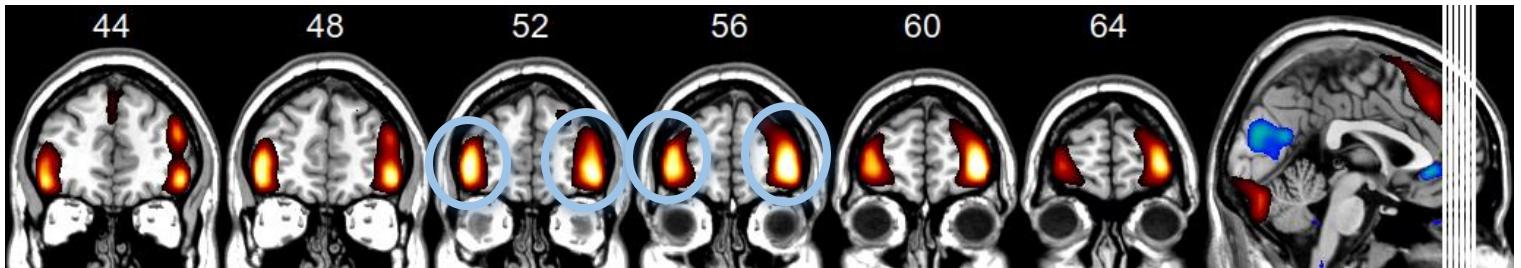
- a) Brotchie TO alcohol unrotated C2
- b) Manoach WM hrfmax C4
- c) Sanford Cortex varimax C6



Re-Evaluation (REEV)
Previous Name: Cognitive Evaluation (CE)

1. **Bilateral Eyeball Sitters: 170, 174, 178, 182, 186, 190**

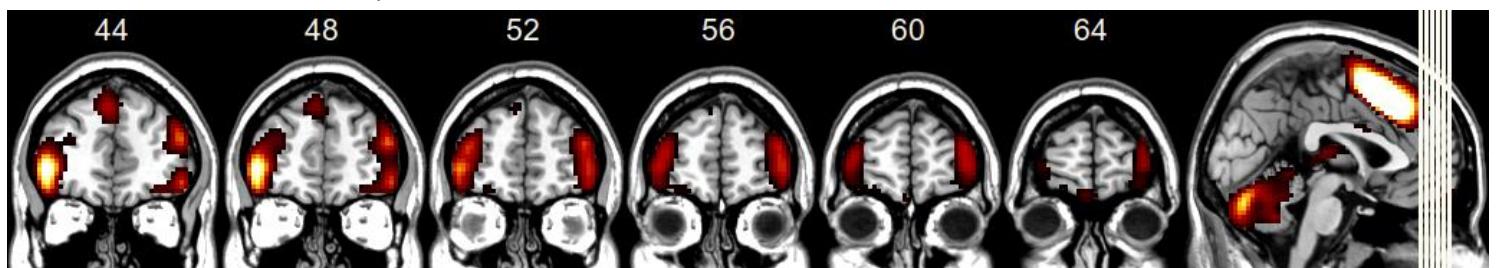
Bilateral activity centered above eyeballs.



Other Networks:

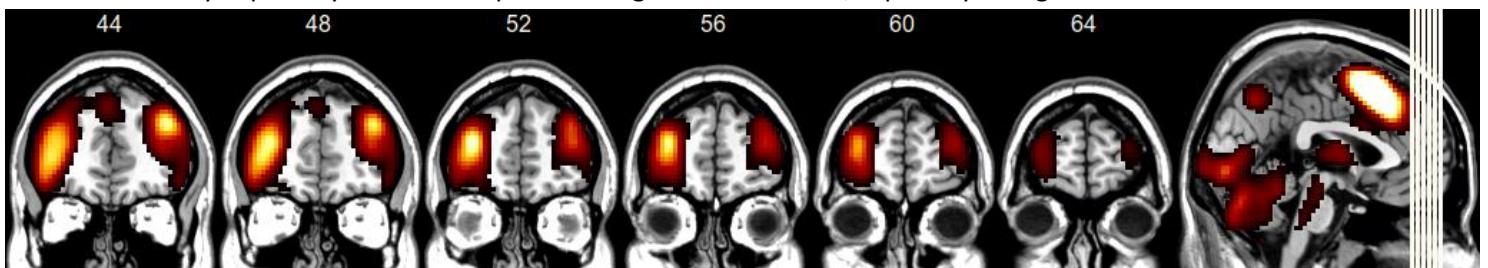
Language Network

Left-dominant activity.



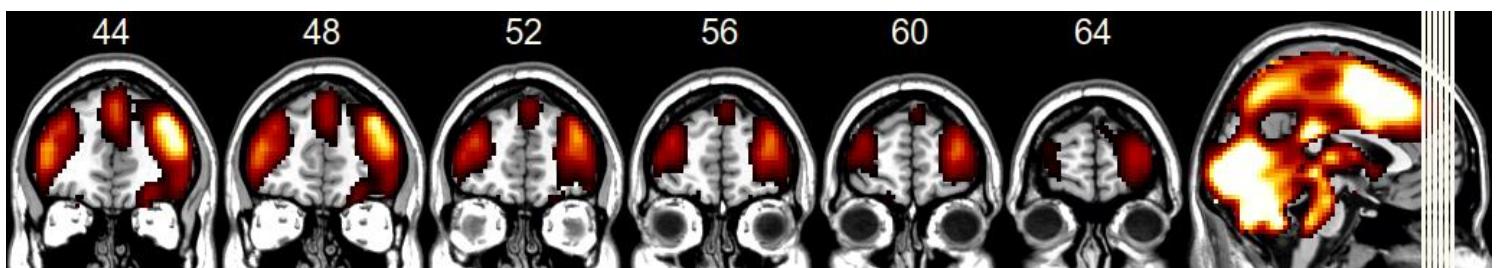
Maintaining Internal Attention

Activity superiorly located compared to cognitive evaluation, especially on right side.



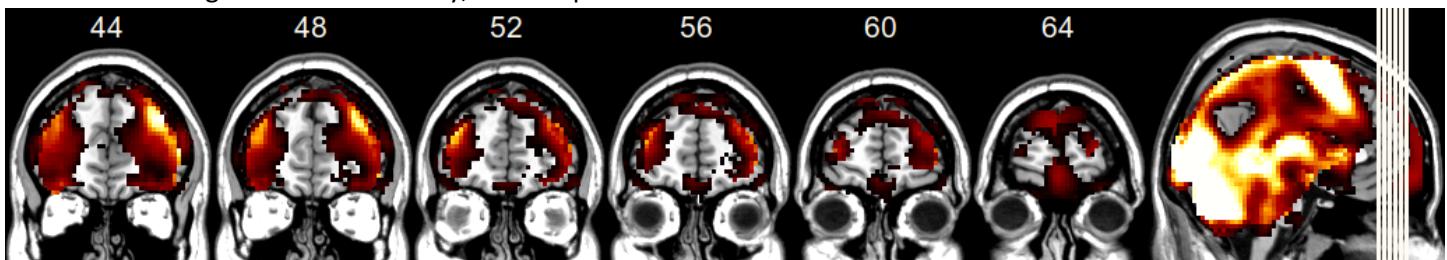
Multiple Demand Network

Right-dominant activity, more superior.

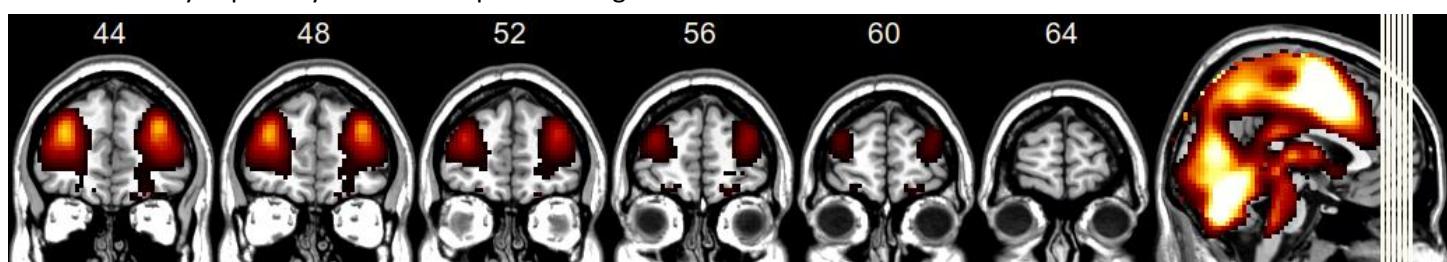
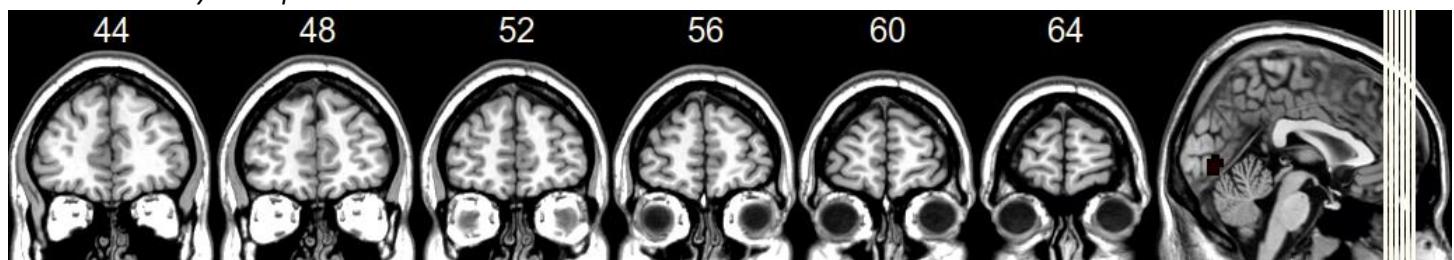


Initiation

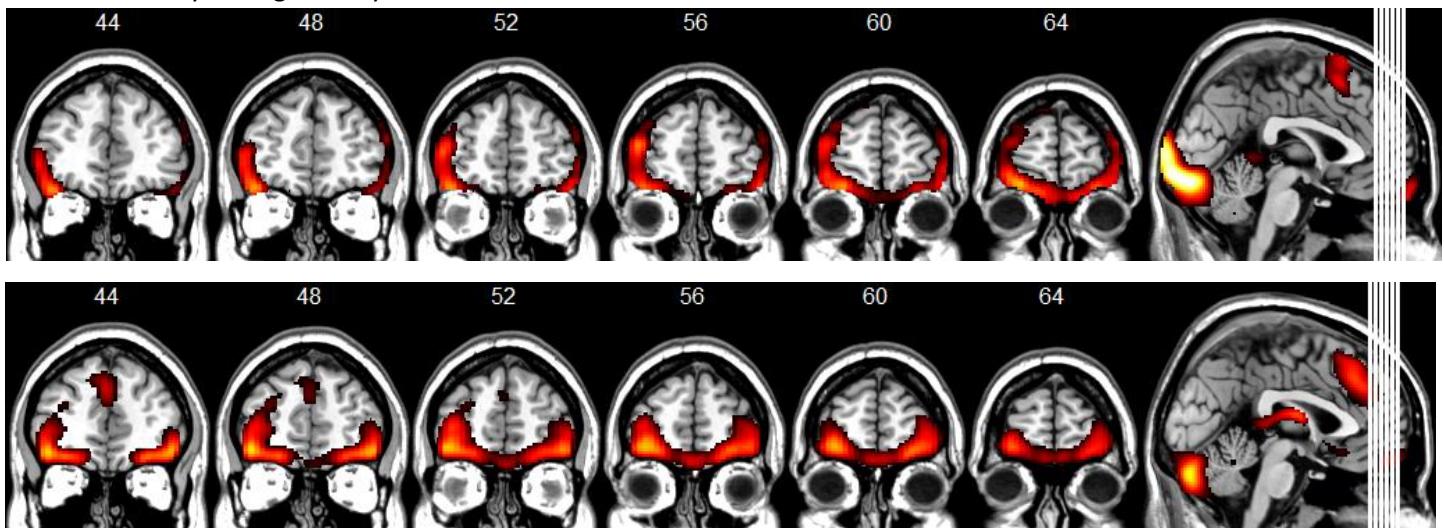
Muted right-dominant activity, more superior.

*Response*

Activity superiorly located compared to cognitive evaluation.

*Auditory Perception**Eye Movement*

Activity sits right on eyeball.



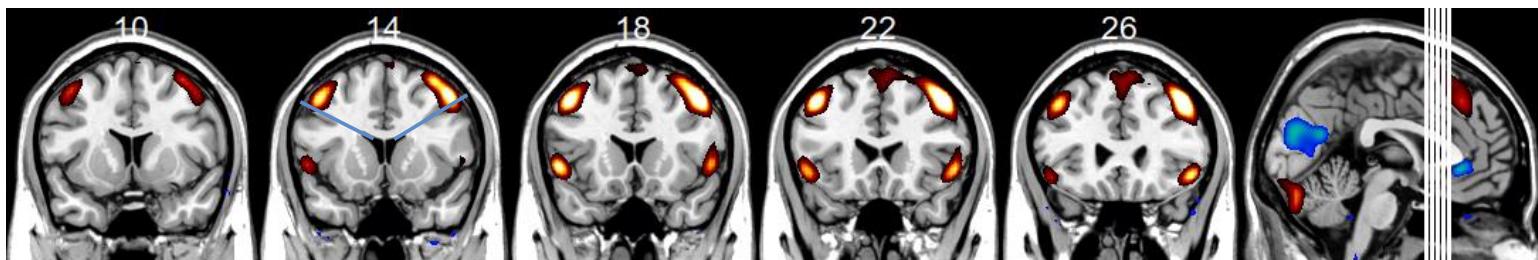


Re-Evaluation (REEV)

Previous Name: Cognitive Evaluation (CE)

2. Bilateral Space Invader Shooters: 136, 140, 144, 148, 152

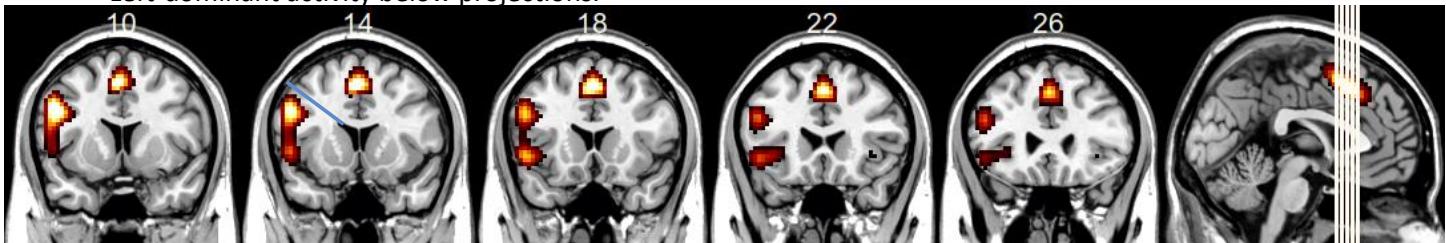
Activation is located in the bilateral frontal gyri superior to a line extending outward at an angle aligning with the angle of direction of the anterior lateral ventricles, as if the lines track a shot out of the ventricles, such as would be seen in a video game that may be called something like *Space Invaders*



Other Networks:

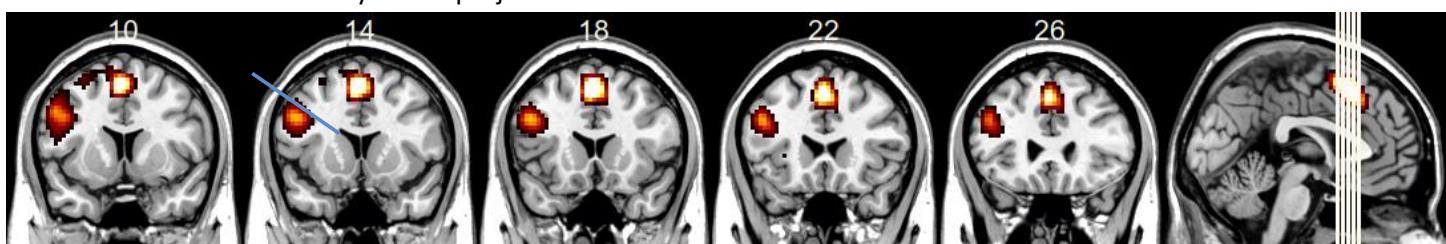
Language Network

Left-dominant activity below projections.



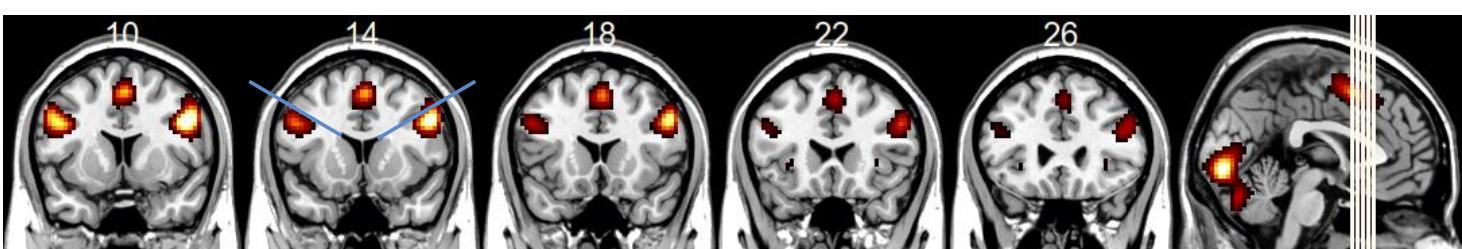
Maintaining Internal Attention

Left-dominant activity below projections.



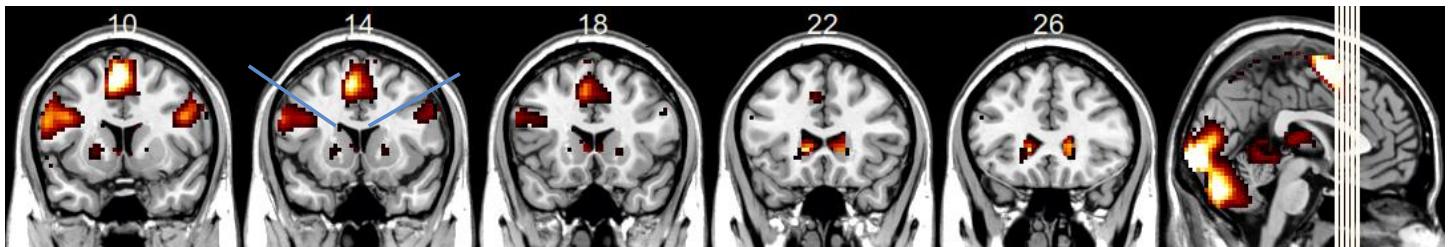
Multiple Demand Network

Bilateral, right-dominant activity below projections.



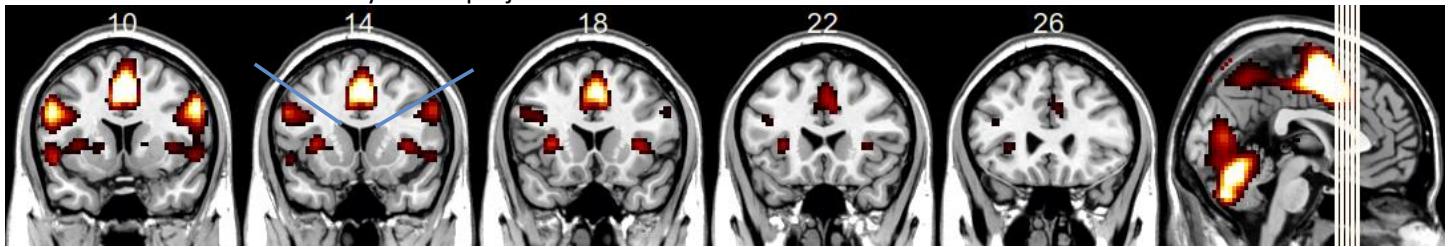
Initiation

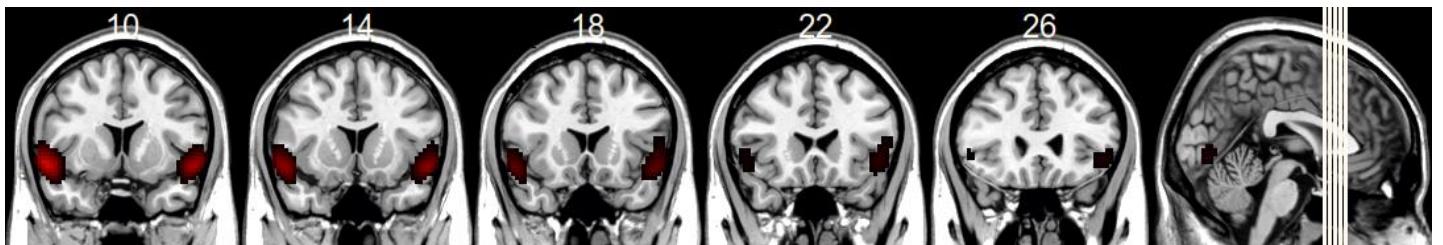
Muted bilateral activity below projections.



Response

Muted bilateral activity below projections.



Auditory Perception

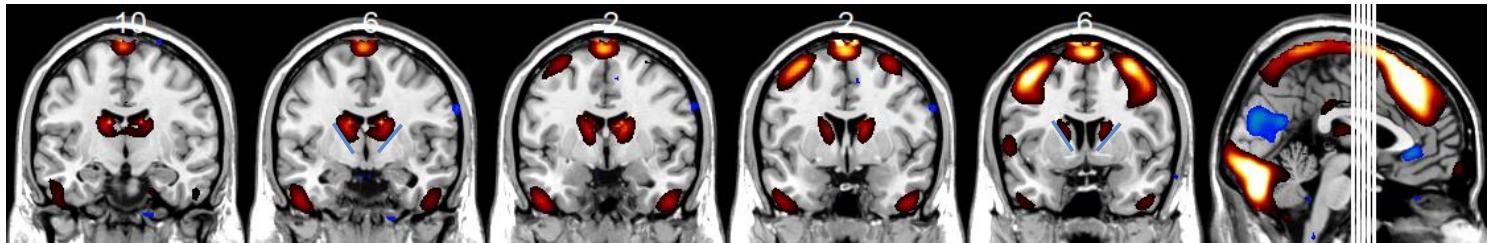


Re-Evaluation (REEV)

Previous Name: Cognitive Evaluation (CE)

3. Above the Line: 116, 120, 124, 128, 132

Bilateral activity in caudate region, above the lines indicated in slice -6 and 6 with blue lines. The cartoon depicts a man walking on a tightrope. The tightrope line should be drawn on the internal capsule, with the tightrope walker depicting a bilateral cluster of activation on the caudate nuclei of the basal ganglia



Other Networks:

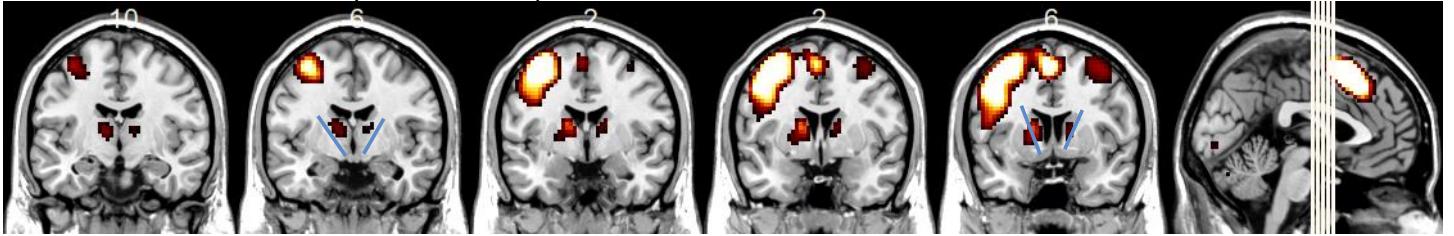
Language Network

Left-dominant activity on internal capsule lines in slice 6.



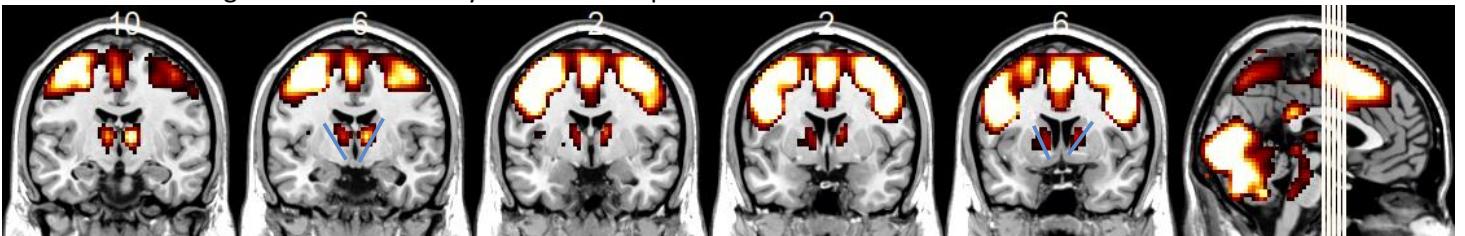
Maintaining Internal Attention

Left-dominant activity on internal capsule lines in slice 6.



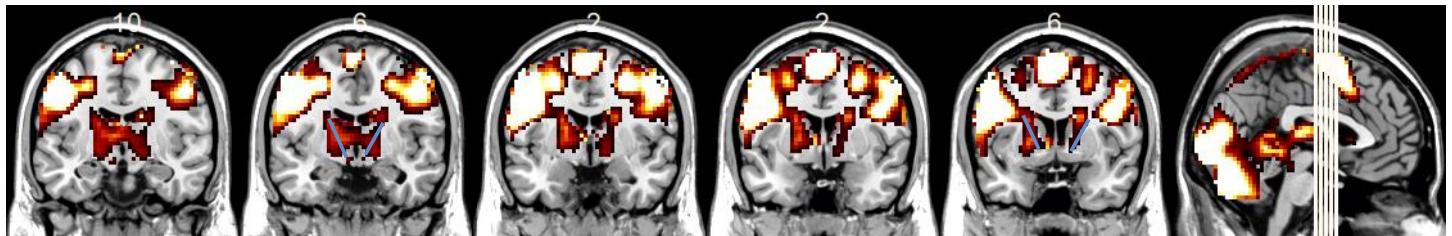
Multiple Demand Network

Bilateral right-dominant activity on internal capsule lines in slice 6.



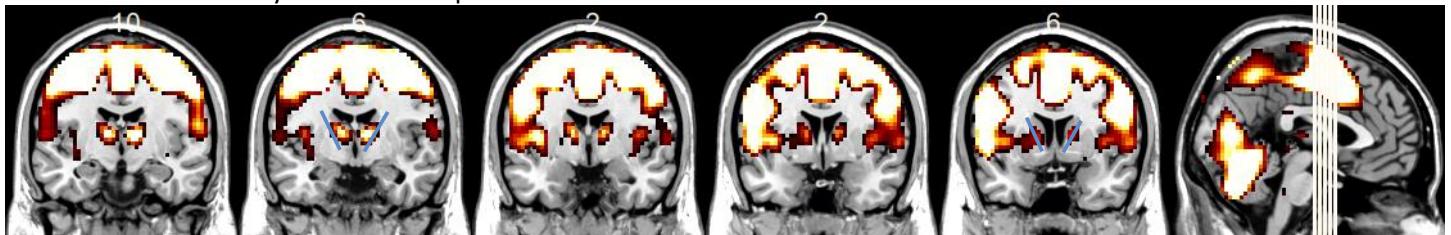
Initiation

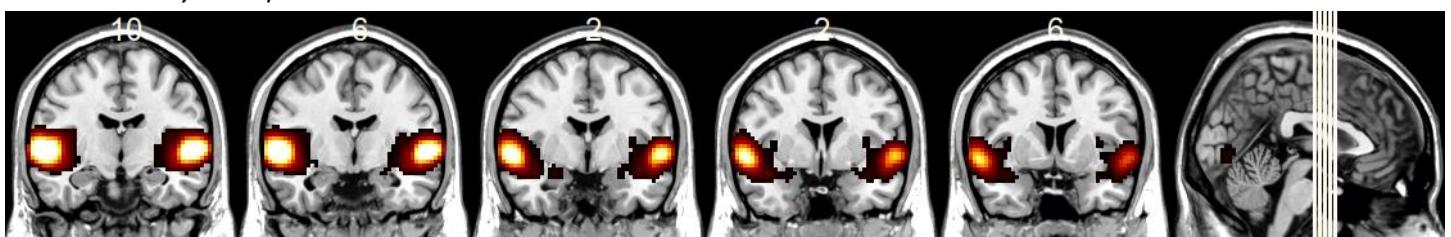
Bilateral activity on internal capsule lines, not well defined.



Response

Bilateral activity on internal capsule lines.



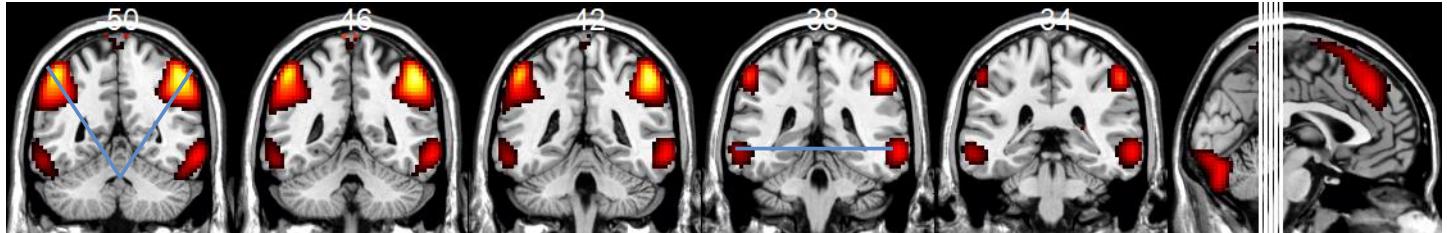
Auditory Perception

Re-Evaluation (REEV)
Previous Name: Cognitive Evaluation (CE)



4. Sad Face Antennae & Flushed Cheeks: 76, 80, 84, 88, 92

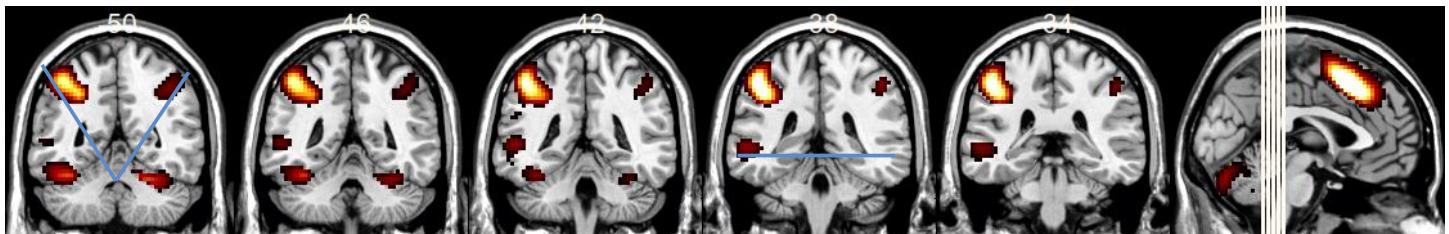
Bilateral activity from sad face antennae projections extend from the “sad face mouth” (fourth ventricle) and eyes (lateral ventricles), see blue lines in slice -50. Flushed cheeks are in line with the “sad face nose” (third ventricle) on slice 38.



Other Networks:

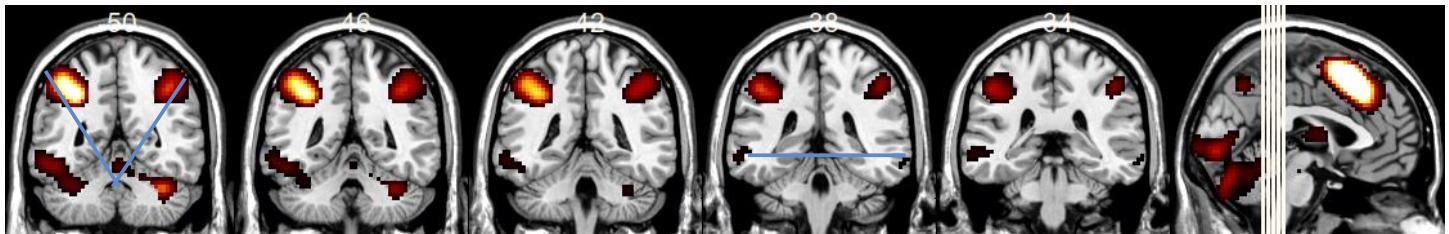
Language Network

Sad Face Antennae left activity more medial. Right activity more medial and inferior. Superior activity is more left-dominant and medial. Flushed Cheeks are muted and left lateralized.



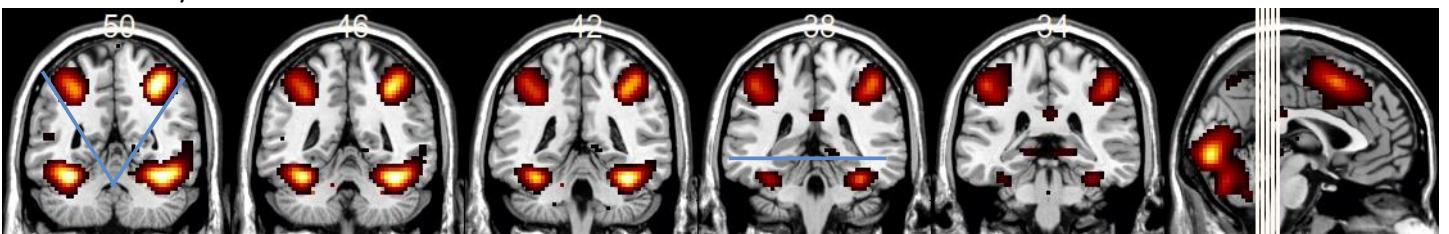
Maintaining Internal Attention

Left activity more medial. Right activity more medial and inferior. Superior activity is more left-dominant and medial. Flushed Cheeks are muted.



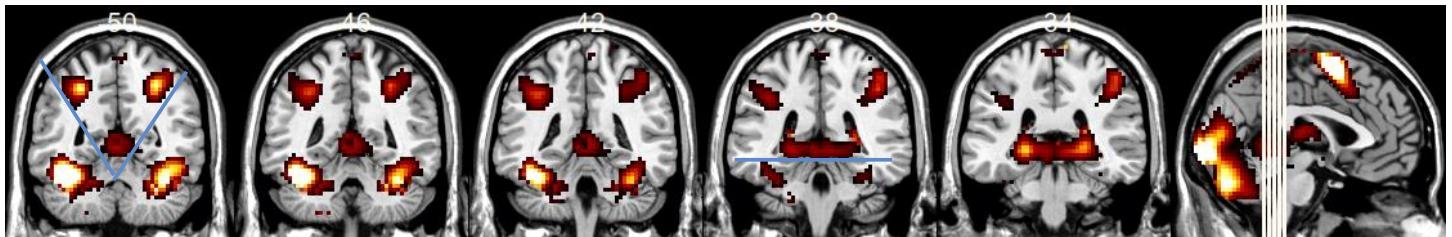
Multiple Demand Network

Activity more medial. Flushed Cheeks are absent.



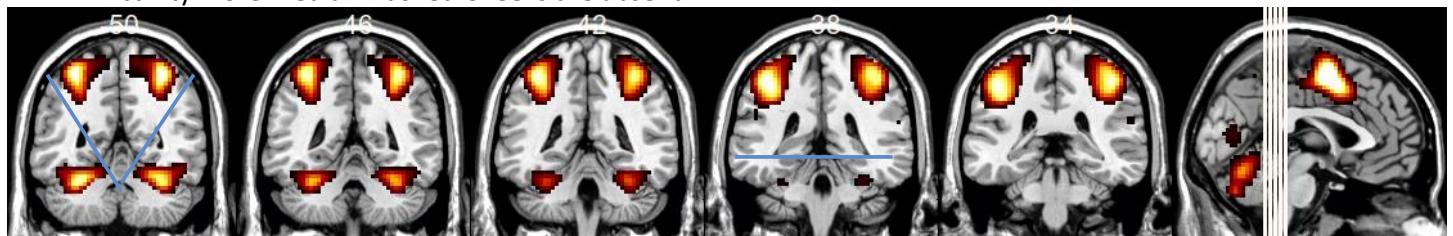
Initiation

Sad Face Antennae activity more medial.



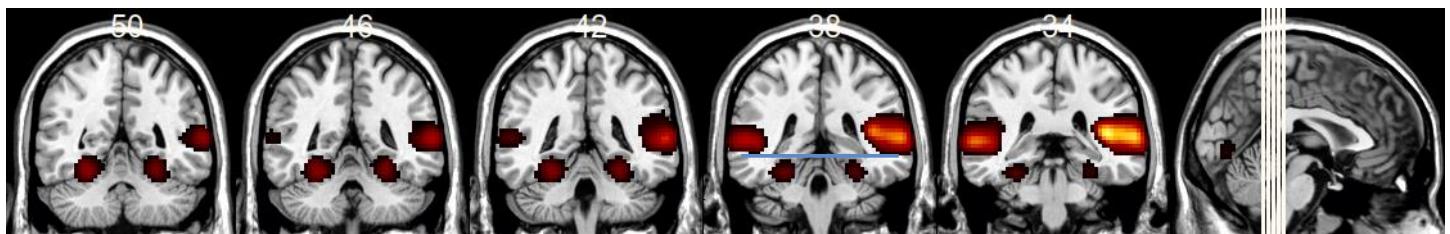
Response

Activity more medial. Flushed Cheeks are absent.



Auditory Perception.

Flushed Cheeks are too superior. Sad Face Antennae are absent.

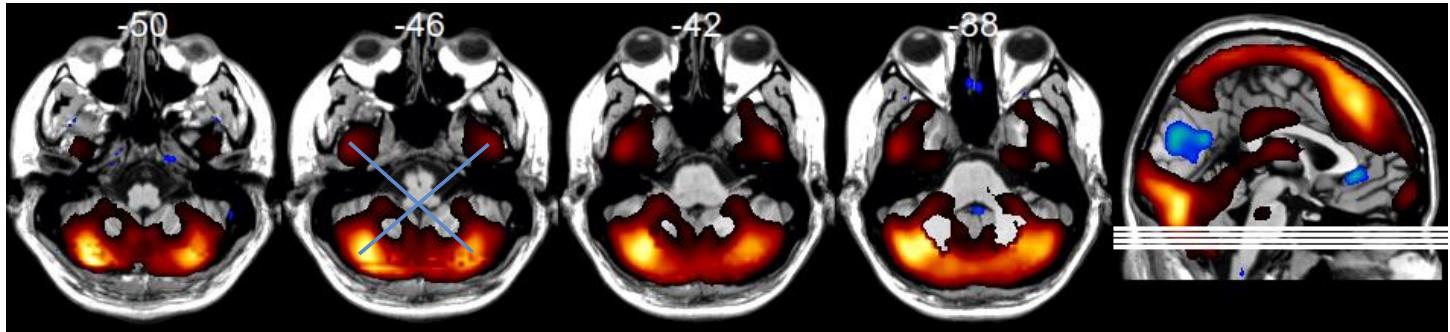


Re-Evaluation (REEV)
Previous Name: Cognitive Evaluation (CE)



5. X Marks the Spot: 22, 26, 30, 34

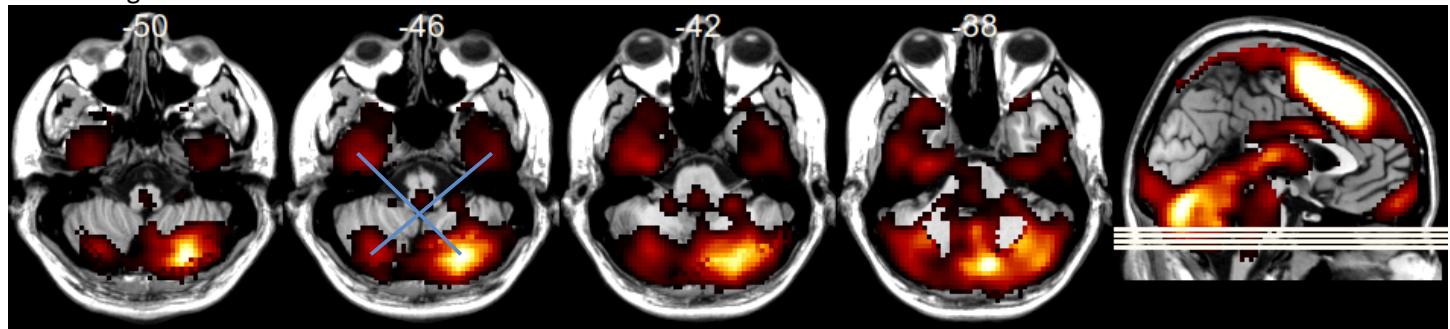
Bilateral activation at X endpoints, see blue lines in slices -50 and -46.



Other Networks:

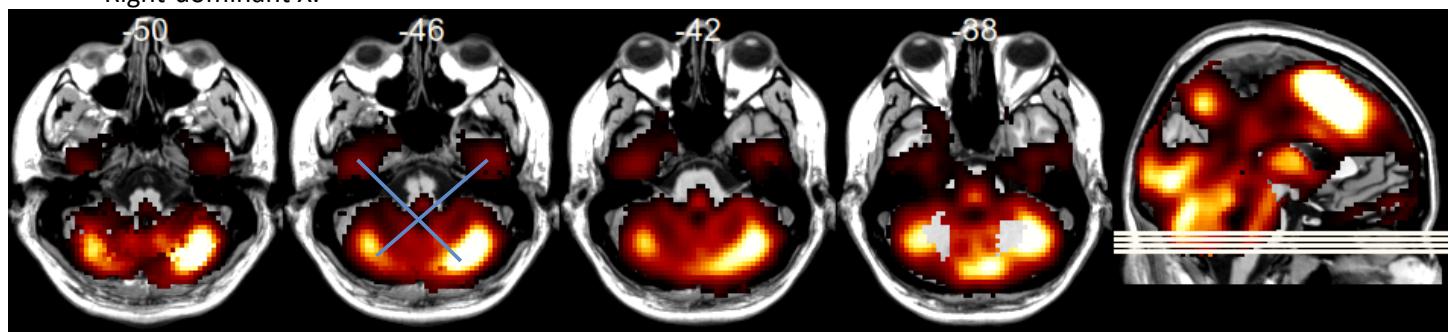
Language Network

Right-dominant X.



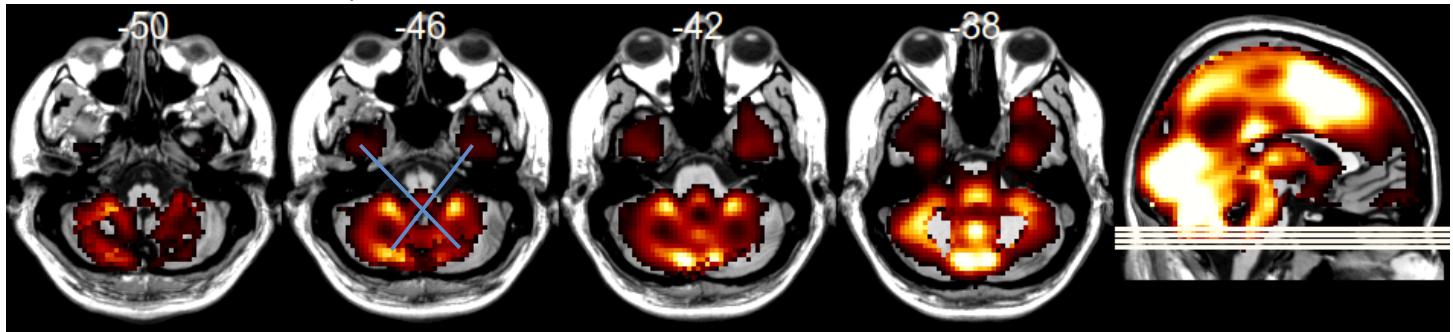
Maintaining Internal Attention

Right-dominant X.



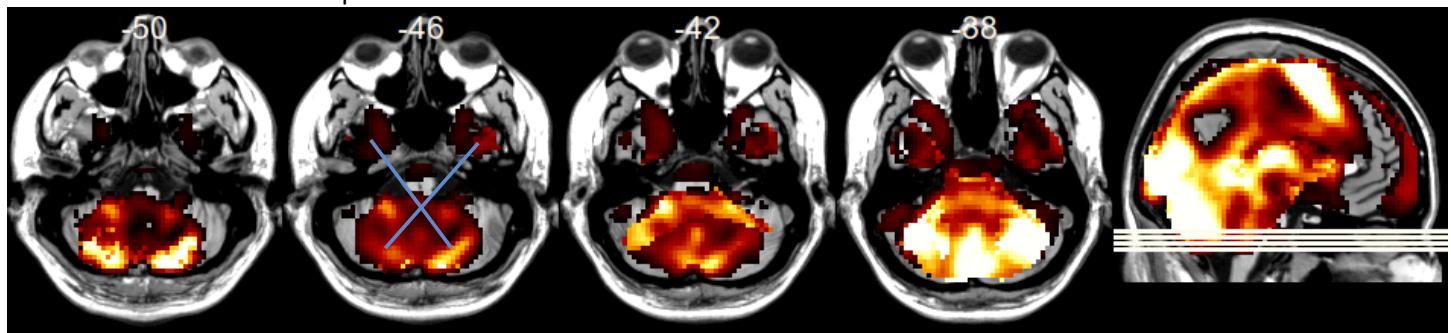
Multiple Demand Network

No defined lower X points.



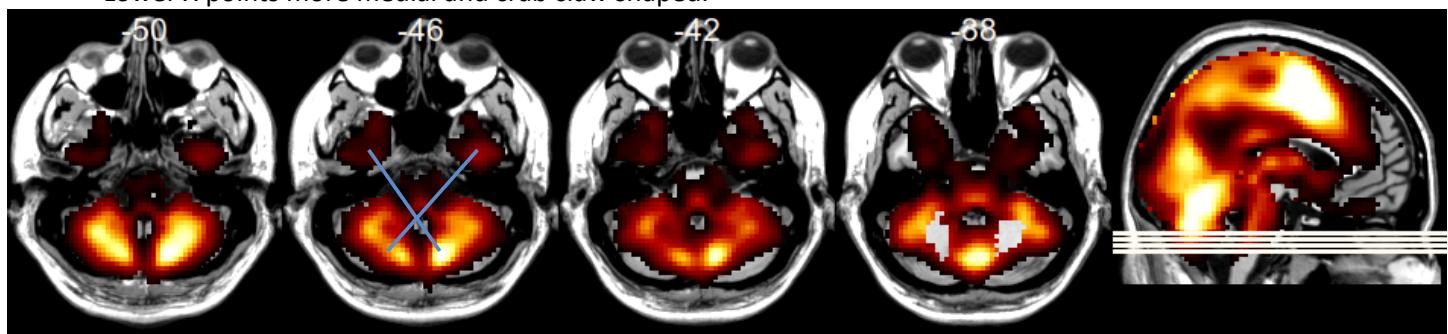
Initiation

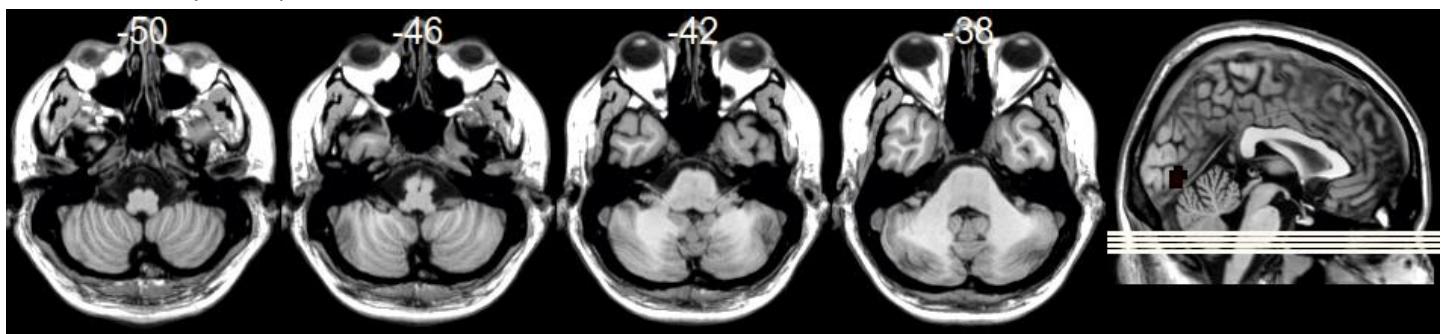
No defined lower X points.



Response

Lower X points more medial and crab claw shaped.



Auditory Perception

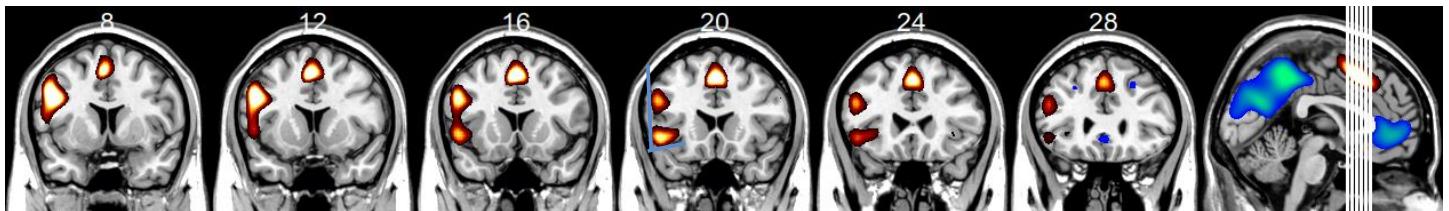
Language Network (LN)

Previous Names: Extraction of Meaning (EOM),
Linguistic Processing (LANG), Language Network (LPN)



1. Rail Shot Coronal: 134,138,142,146,150,154

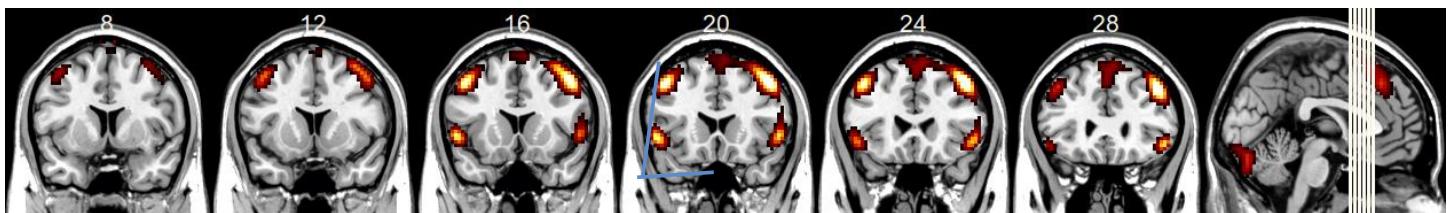
Left lateralized activity, two peaks in line similar to pool rail shot, see blue lines in slice 20.



Other Networks:

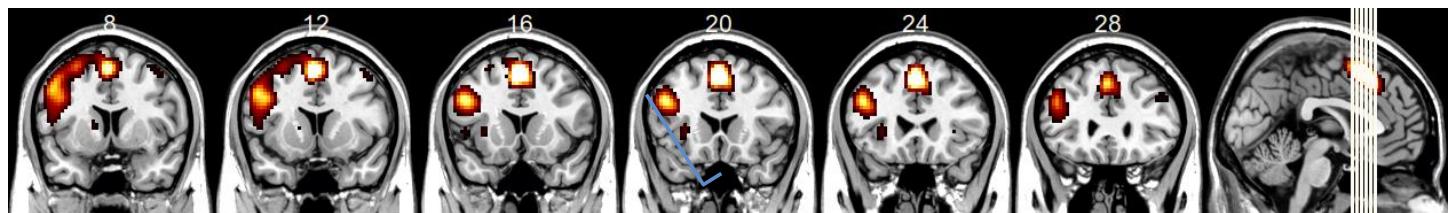
Re-Evaluation

Higher pool ball more superior and medial. Lower pool ball more inferior and lateral.



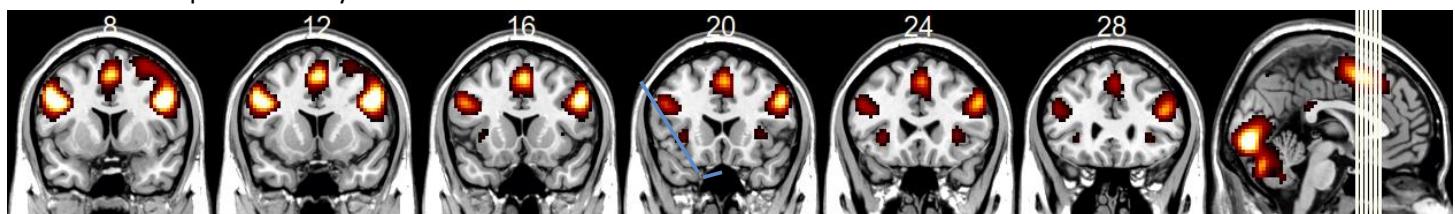
Maintaining Internal Attention

Left-lateralized and lower pool ball very muted and medial.



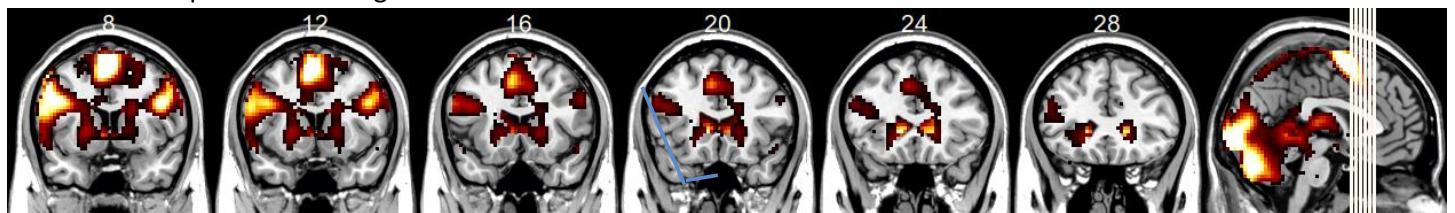
Multiple Demand Network

Lower pool ball very muted and medial.



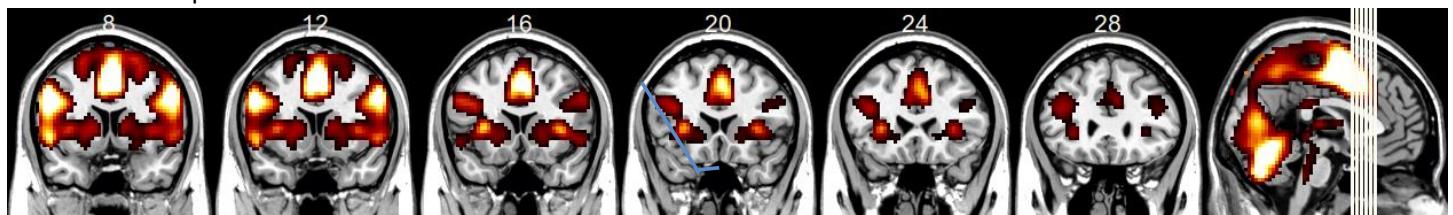
Initiation

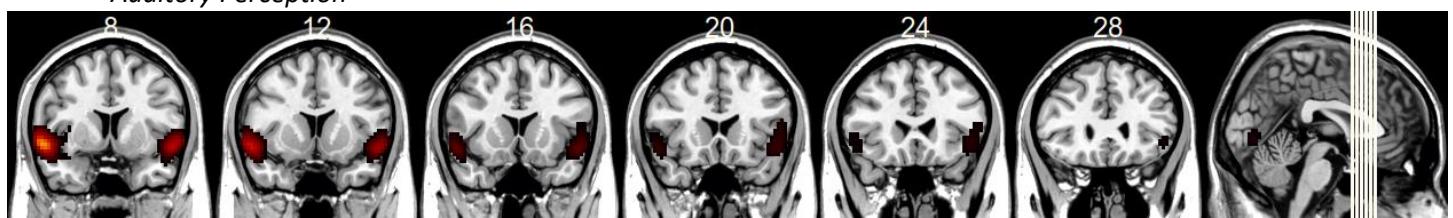
Lower pool ball missing.



Response

Lower pool ball more medial.



Auditory Perception

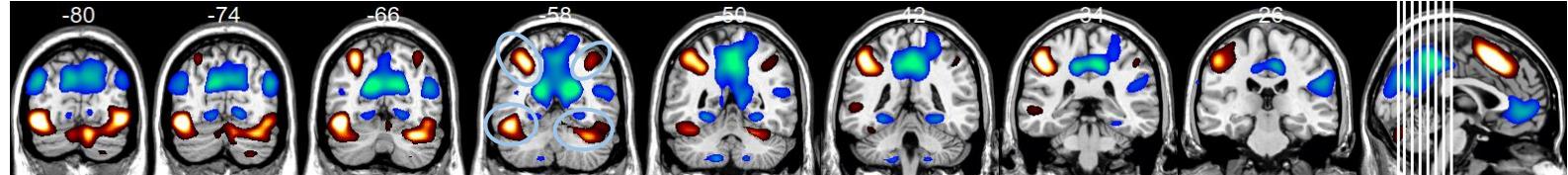


Language Network (LN)

Previous Names: Extraction of Meaning (EOM),
Linguistic Processing (LANG), Language Network (LPN)

2. Tears Blown Leftwards & Eyebrows: 46, 52, 60, 68, 76, 84, 92, 100

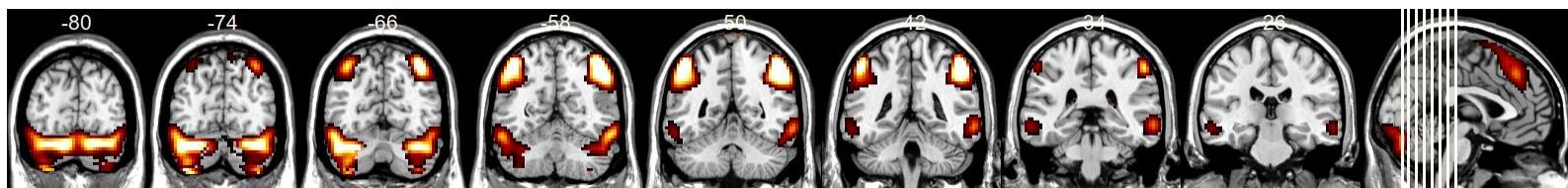
Sad face with tear drop blown leftwards, left-dominant angry eyebrows, see slice -58 and -5s0.



Other Networks:

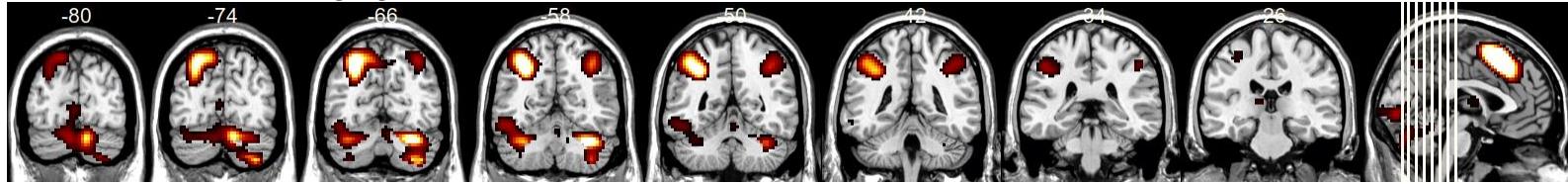
Re-Evaluation

No distinct eyebrows, lateral cheek activity not tears.



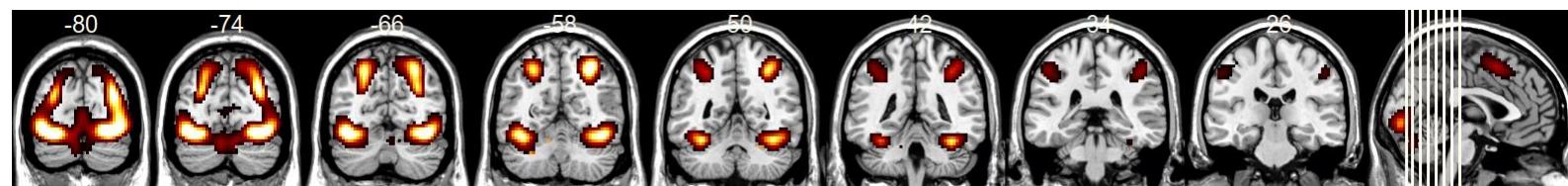
Maintaining Internal Attention

Similar to Language but left tears less defined.



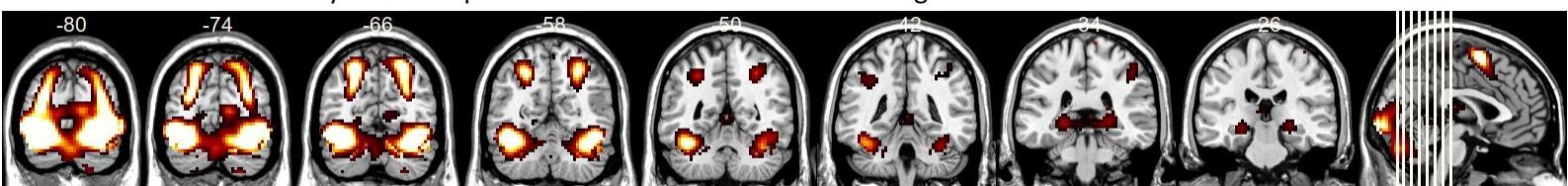
Multiple Demand Network

Right-dominant eyebrow. Right tear more superior.



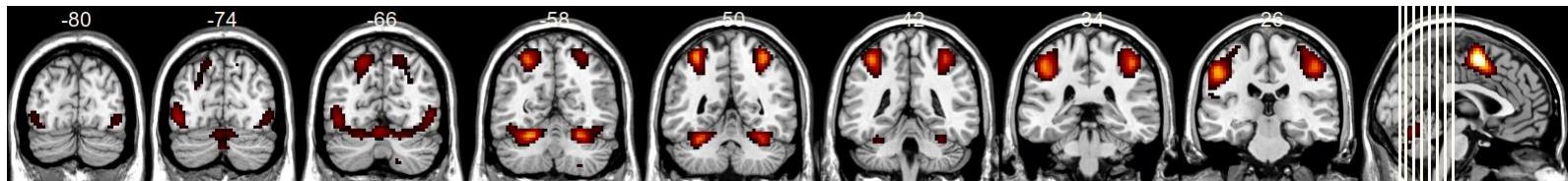
Initiation

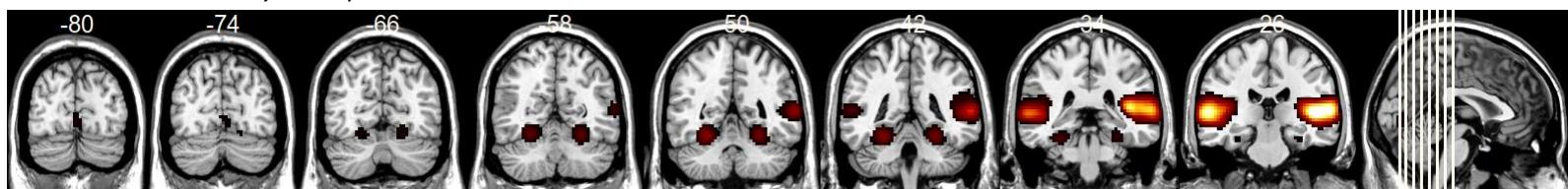
No distinct eyebrow shape and more medial. Tears more enlarged



Response

No distinct eyebrow shape and more medial. Left tear more inferior.



Auditory Perception

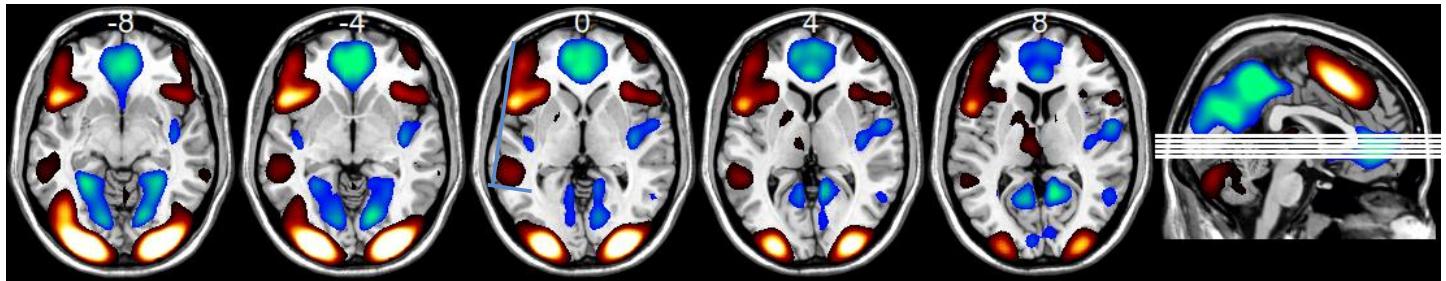


Language Network (LN)

Previous Names: Extraction of Meaning (EOM),
Linguistic Processing (LANG), Language Network (LPN)

3. Rail Shot Axial: 64, 68, 72, 76, 80

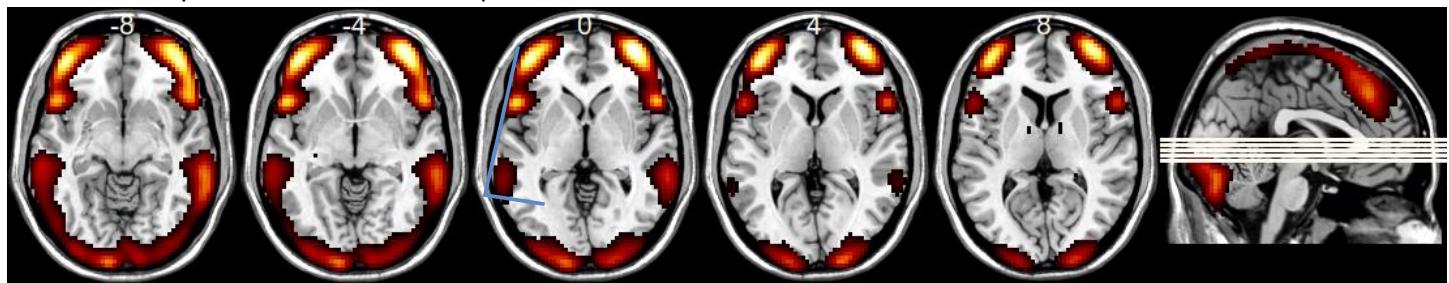
Left lateralized activity, two peaks in line similar to pool rail shot, see blue lines in slice 0.



Other Networks:

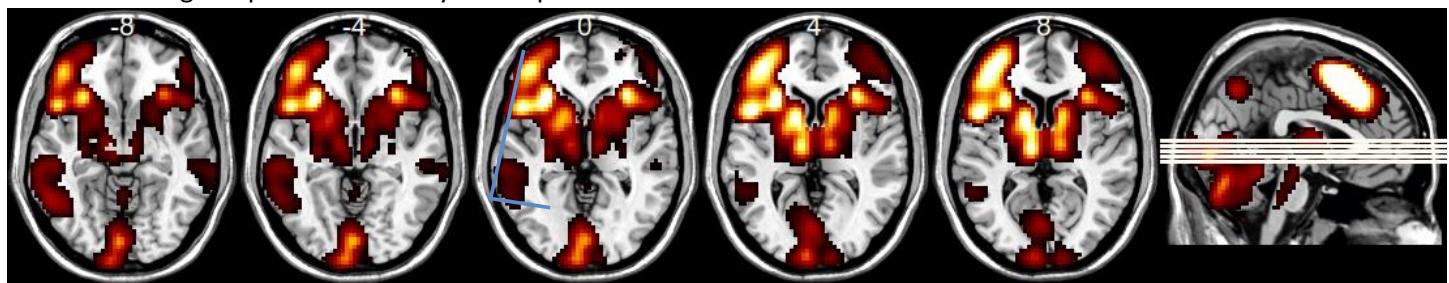
Re-Evaluation

Activity more anterior for front pool ball.



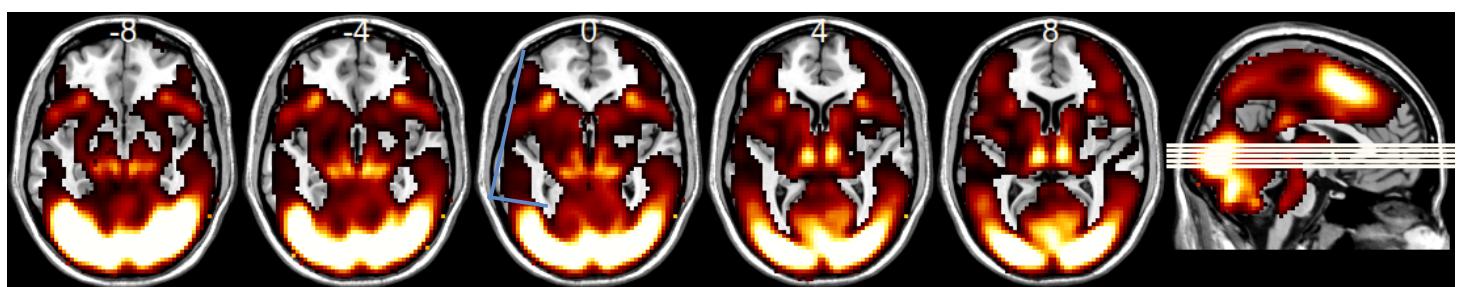
Maintaining Internal Attention

Missing occipital lobe activity. Front pool ball looks like a trio.



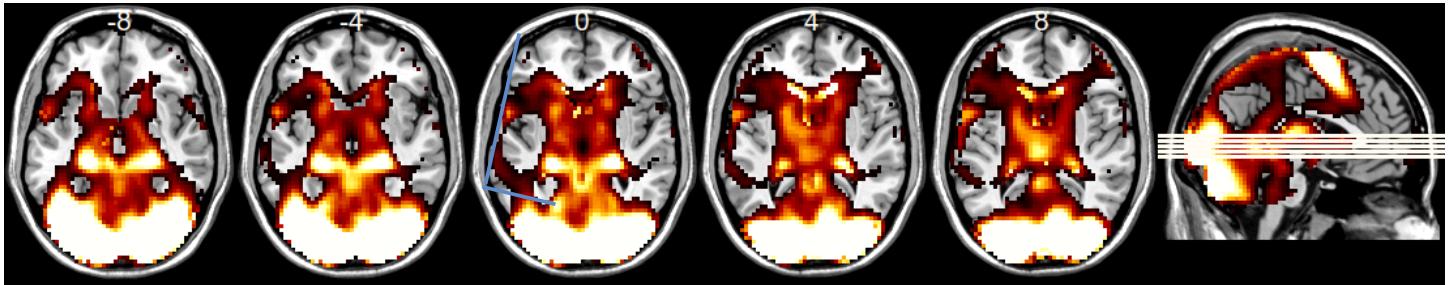
Multiple Demand Network

Neither pool ball well defined.



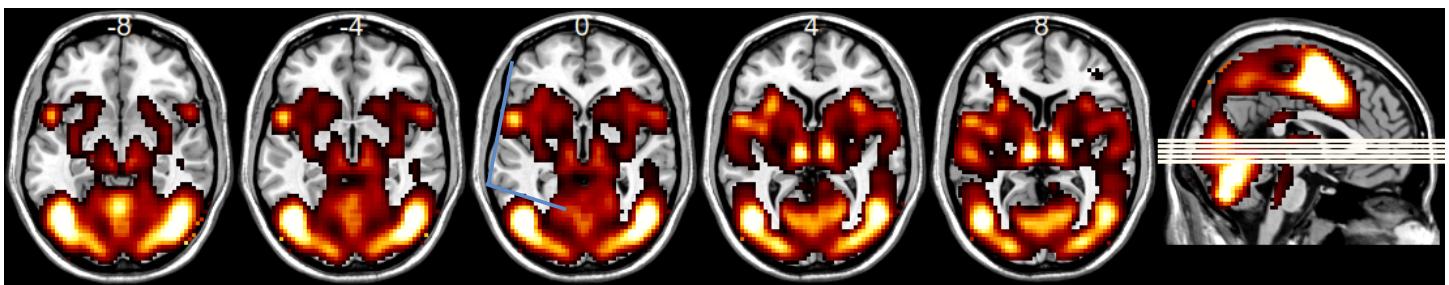
Initiation

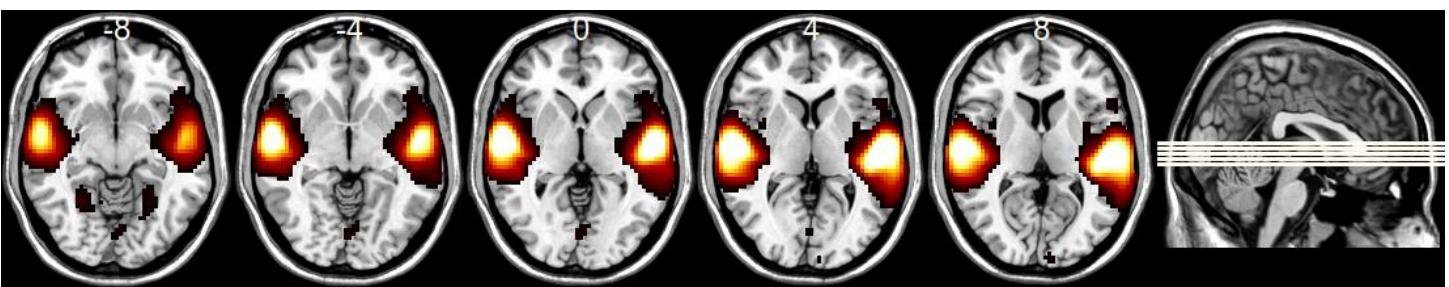
Neither pool ball well defined.



Response

Missing posterior pool ball.



Auditory Perception

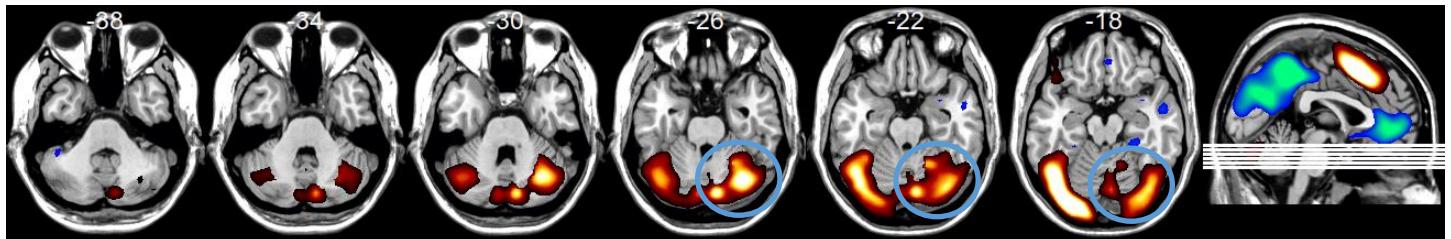
Language Network (LN)

Previous Names: Extraction of Meaning (EOM),
Linguistic Processing (LANG), Language Network (LPN)



4. Disappearing Face (Start Right, Disappear Left): 34, 38, 42, 46, 50, 54

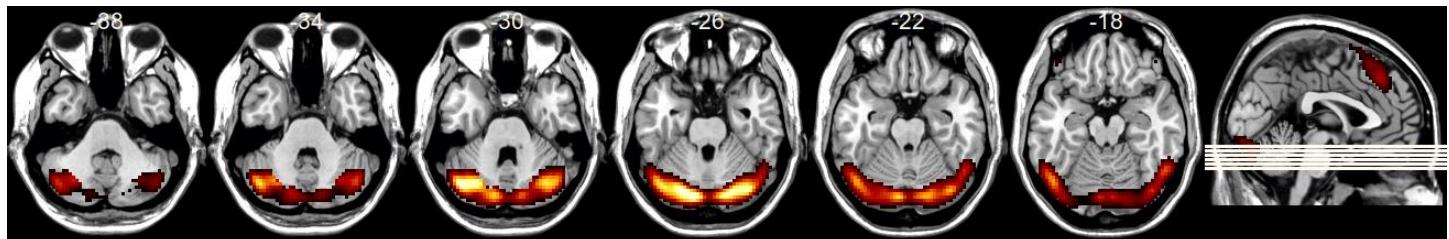
Diagonal smiley face apparent on right side of slice -18 and disappears by slice -36.



Other Networks:

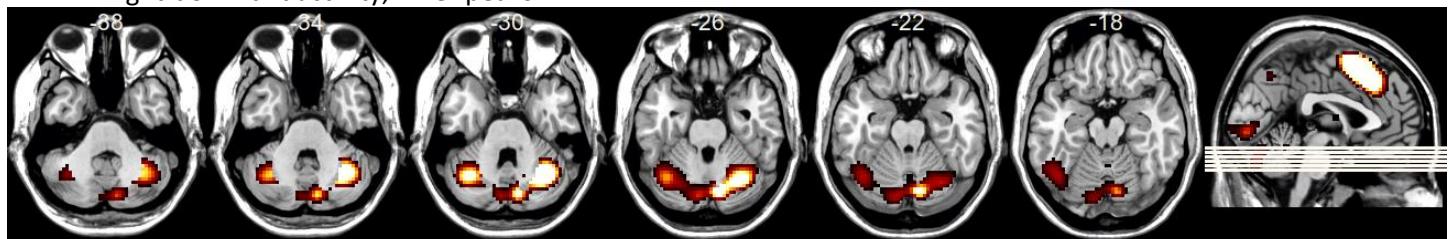
Re-Evaluation

Bilateral posterior and lateral activity.



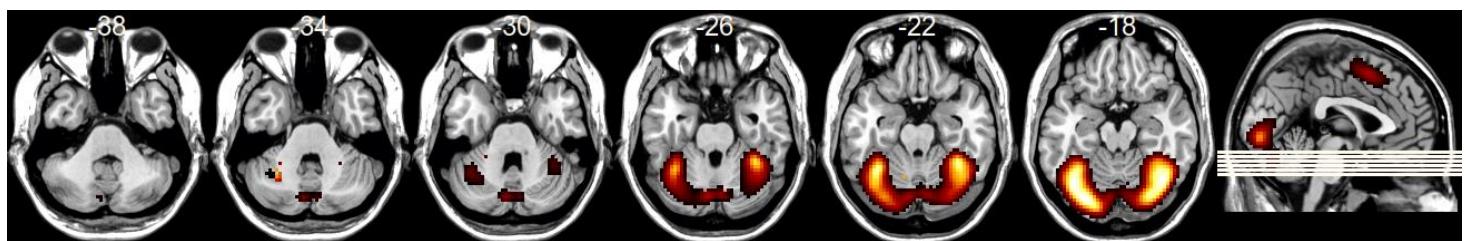
Maintaining Internal Attention

Right-dominant activity, inner peaks



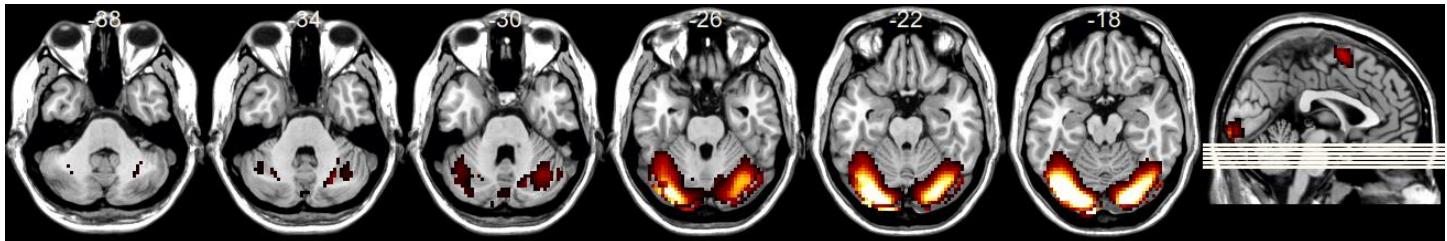
Multiple Demand Network

No face.



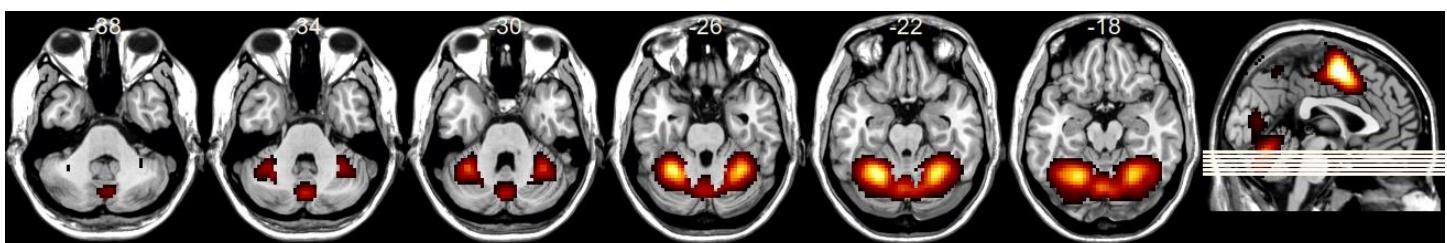
Initiation

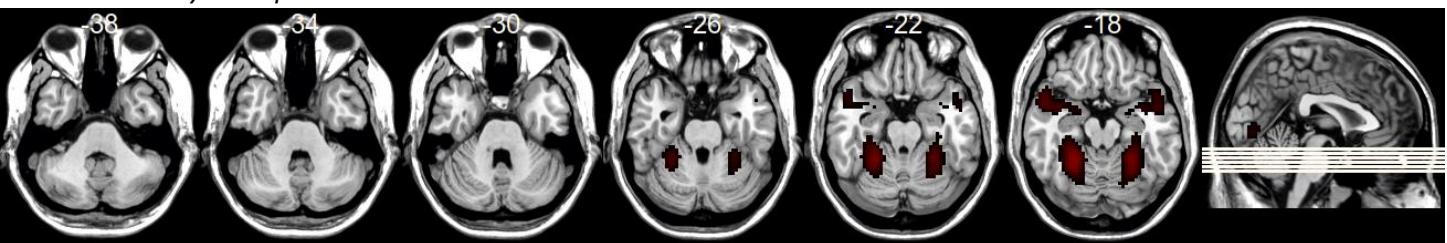
No face.



Response

No face.



Auditory Perception

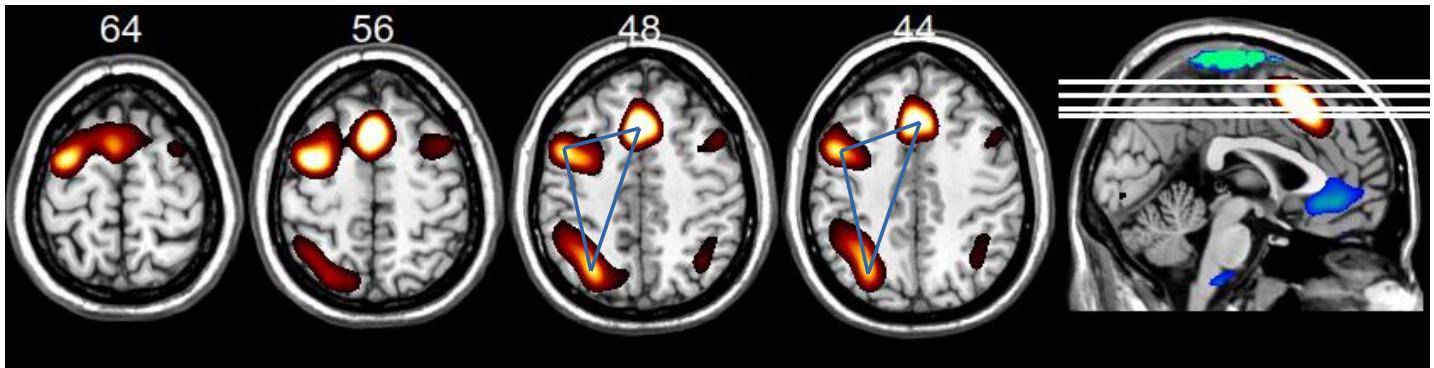
Maintaining Internal Attention (MAIN)

Previous Names: Access to Internally Stored Information (AISI)
Internal Attention (INT)



1. Left-Lateralized Upper Triangle: 136,128,120,116

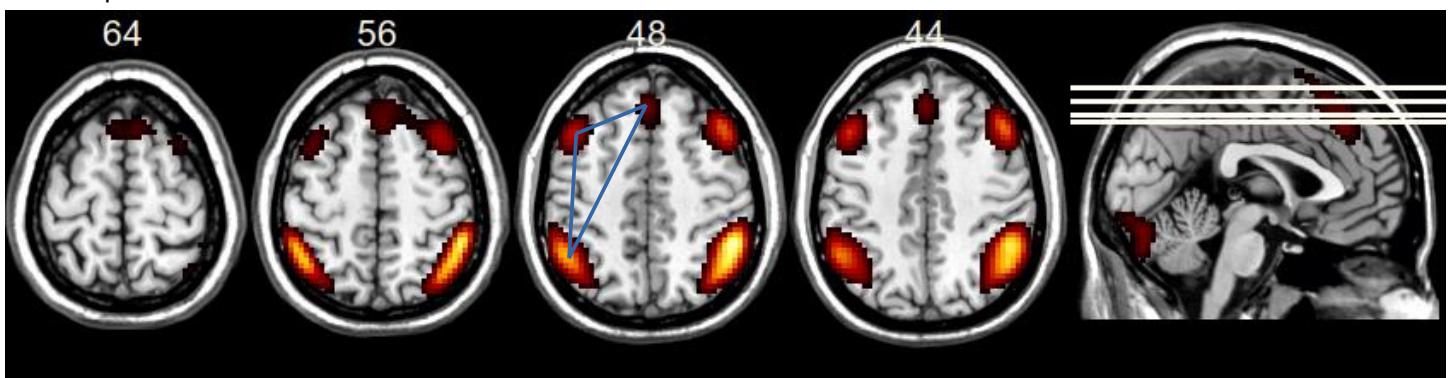
Left-lateralized triangle, see blue lines in slices 48 and 44.



Other Networks:

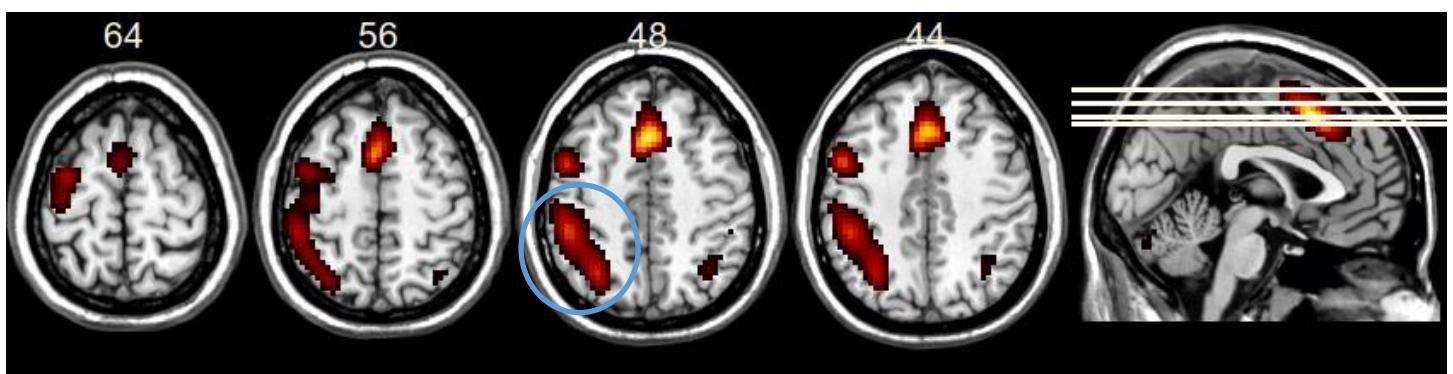
Re-Evaluation

Bilateral larger triangles, front corner is further anterior and lateral corners more lateral. Muted centre point.



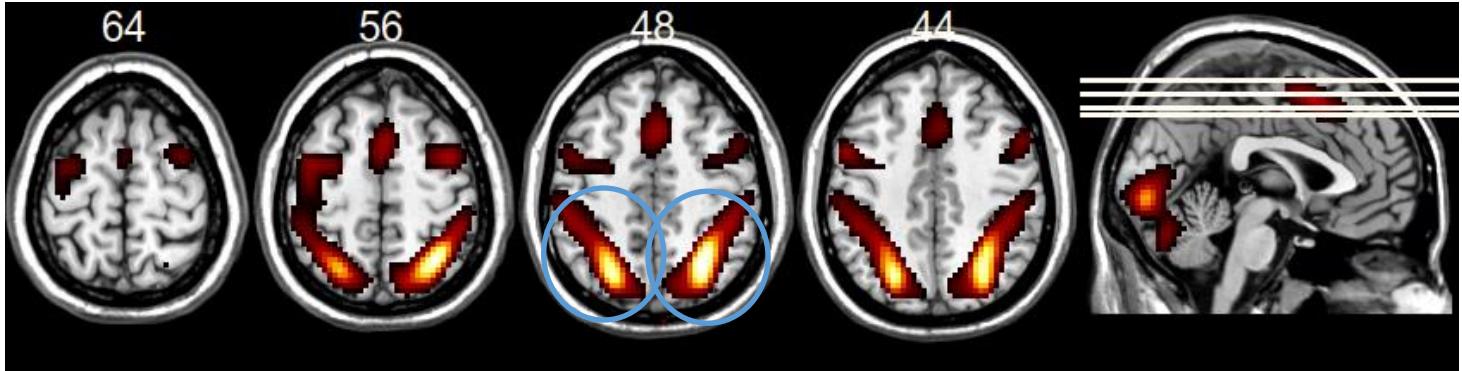
Language Network

Similar to Internal Attention but bottom of triangle extends more along edge.



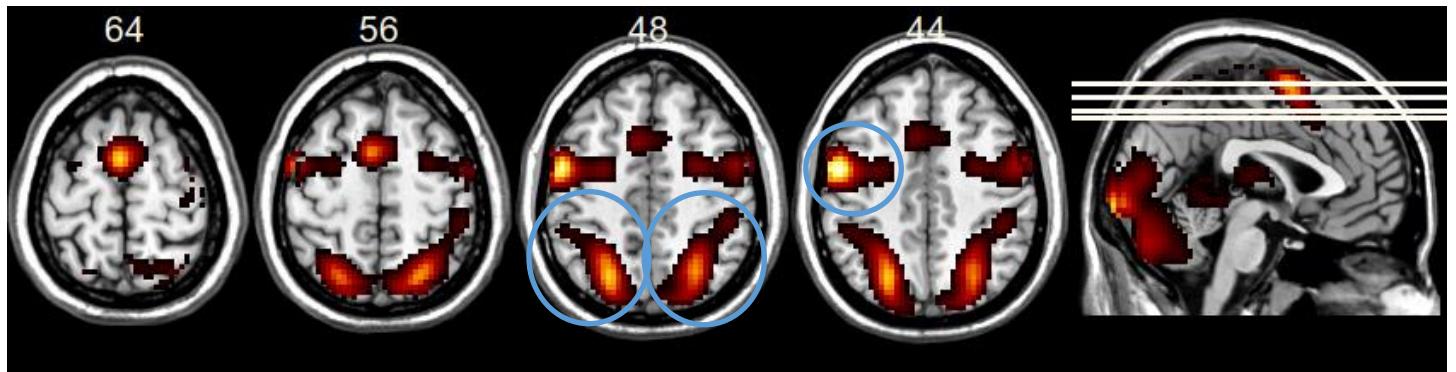
Multiple Demand Network

Bilateral, bottom of triangle extends along edge and dominant bottom of triangle. Muted centre point.



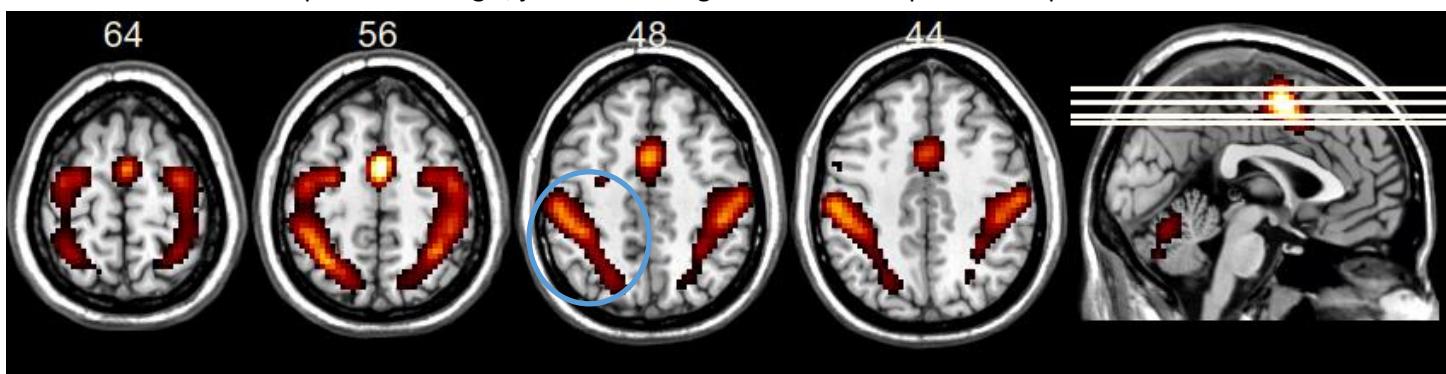
Initiation

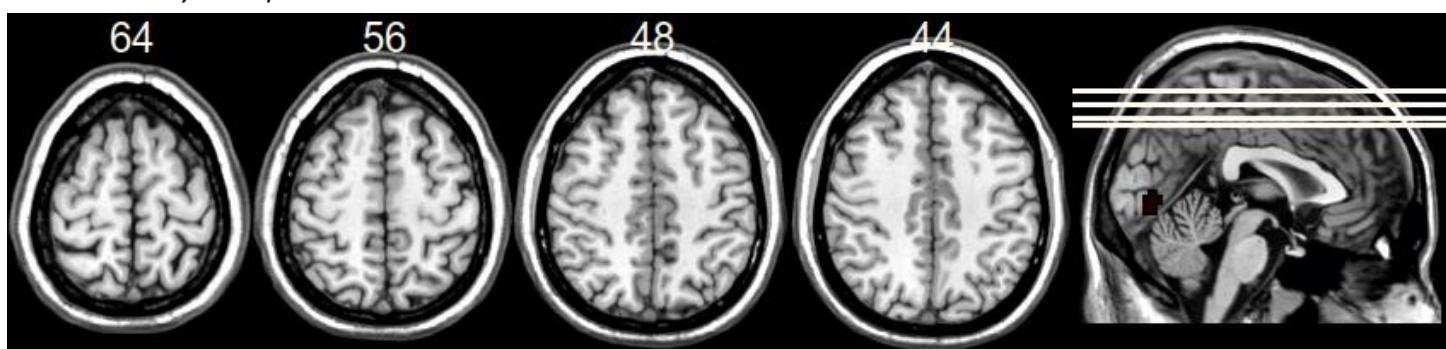
Bilateral, bottom of triangle extends along edge and dominant left outer point. Muted centre point.



Response

No defined outer points of triangle, just bottom edge visible. Centre point more posterior.



Auditory Perception


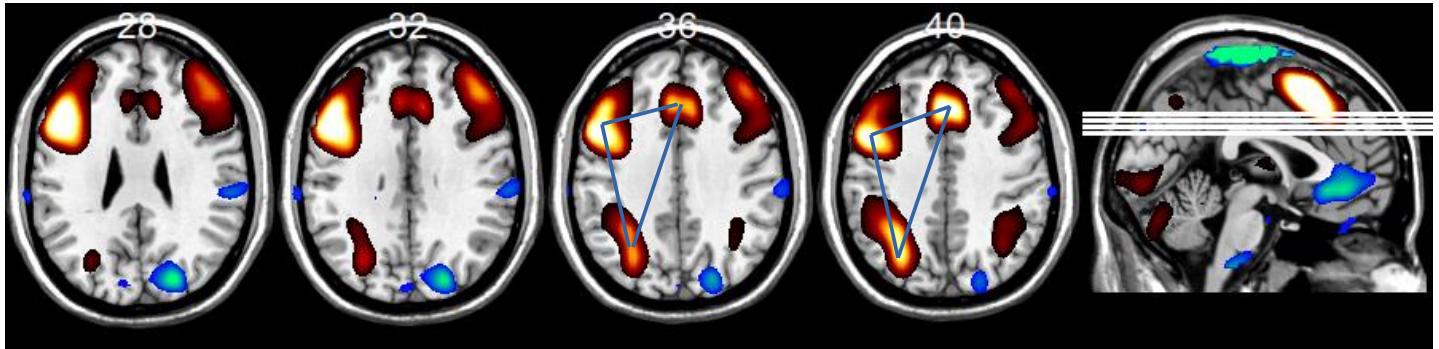
Maintaining Internal Attention (MAIN)

Previous Names: Access to Internally Stored Information (AISI)
Internal Attention (INT)



2. Left-Lateralized Lower Triangle: 100, 104, 108, 112

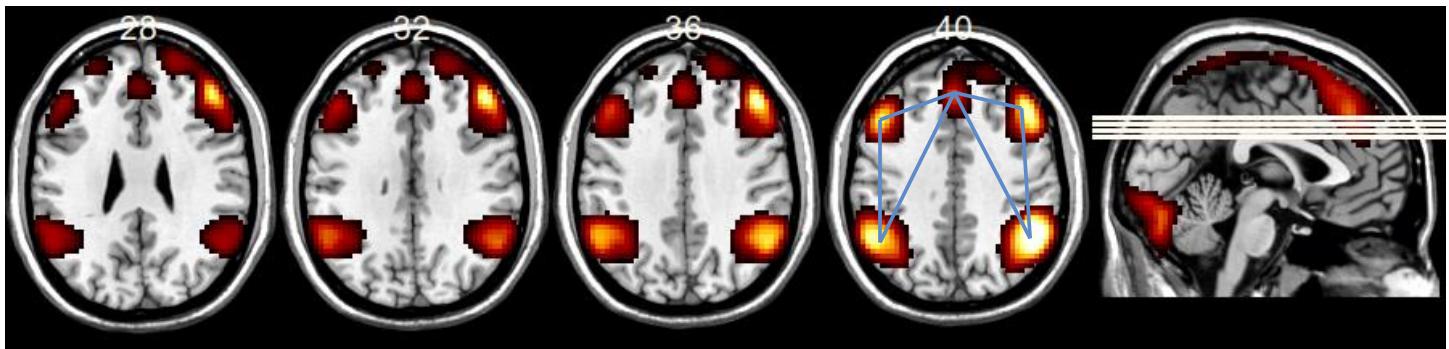
Left-lateralized triangle, see blue lines in slices 36, 40.



Other Networks:

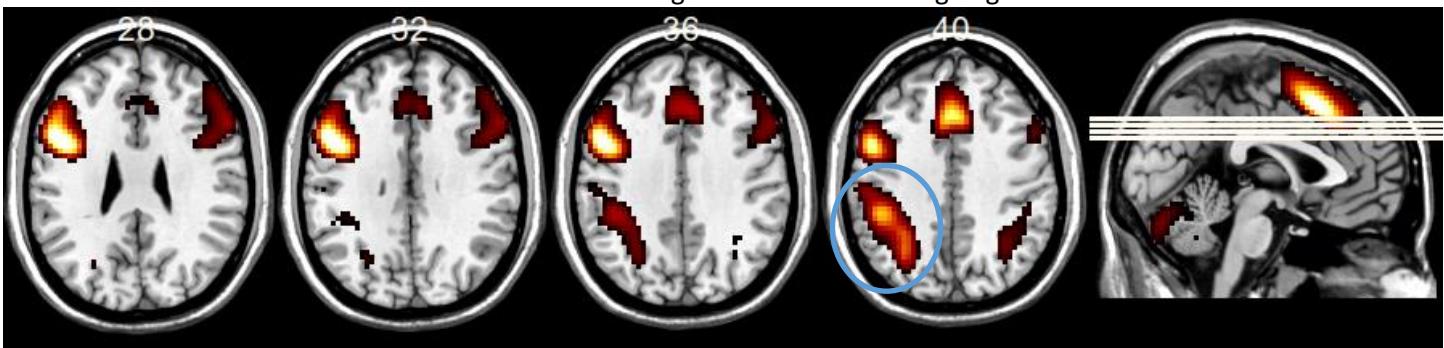
Re-Evaluation

Bilateral larger triangles.



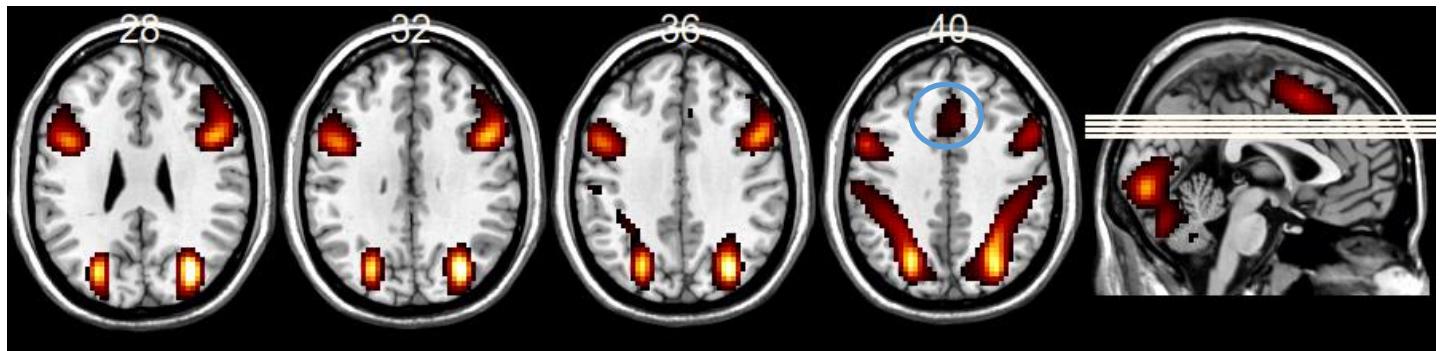
Language Network

Similar to Internal Attention but bottom of triangle extends more along edge.



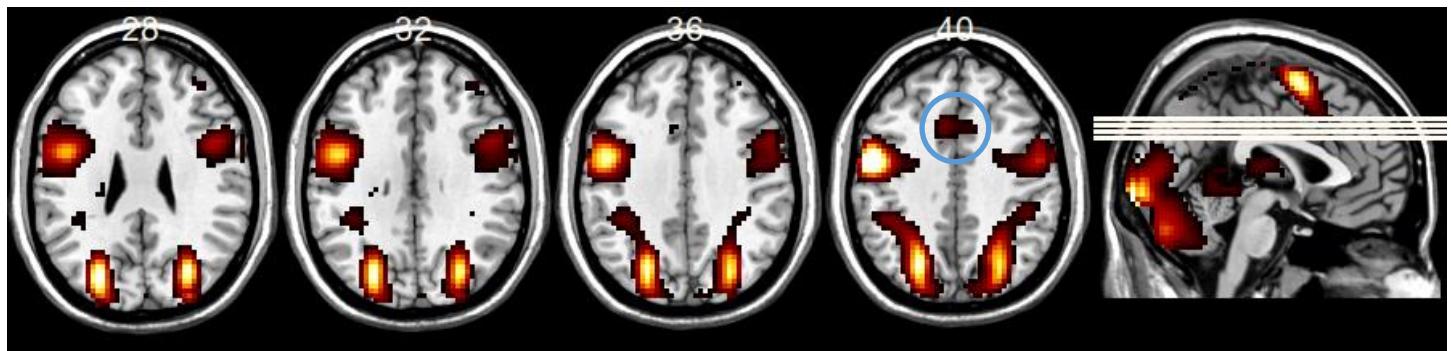
Multiple Demand Network

Bilateral and muted centre point of triangle. Activity extends along bottom edge of triangle.



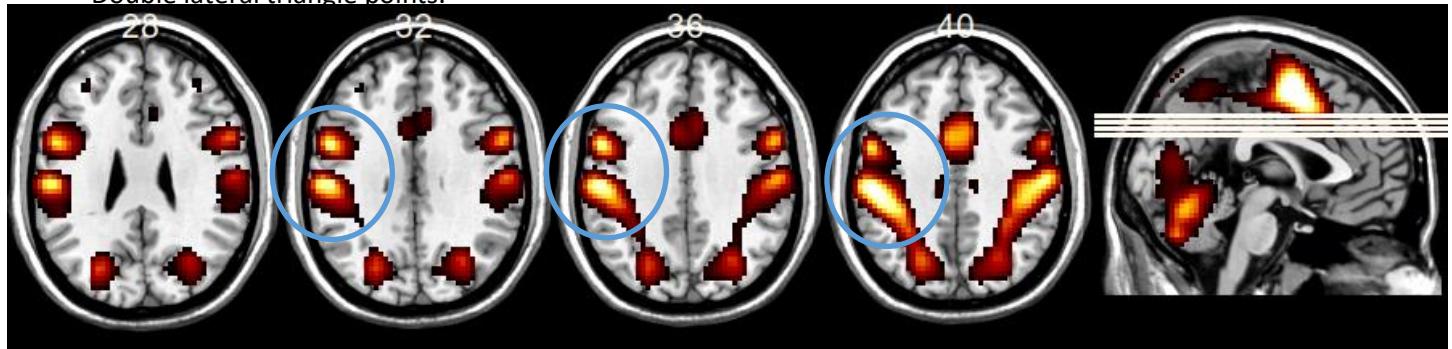
Initiation

Bilateral and muted centre point of triangle. Activity extends along bottom edge of triangle.

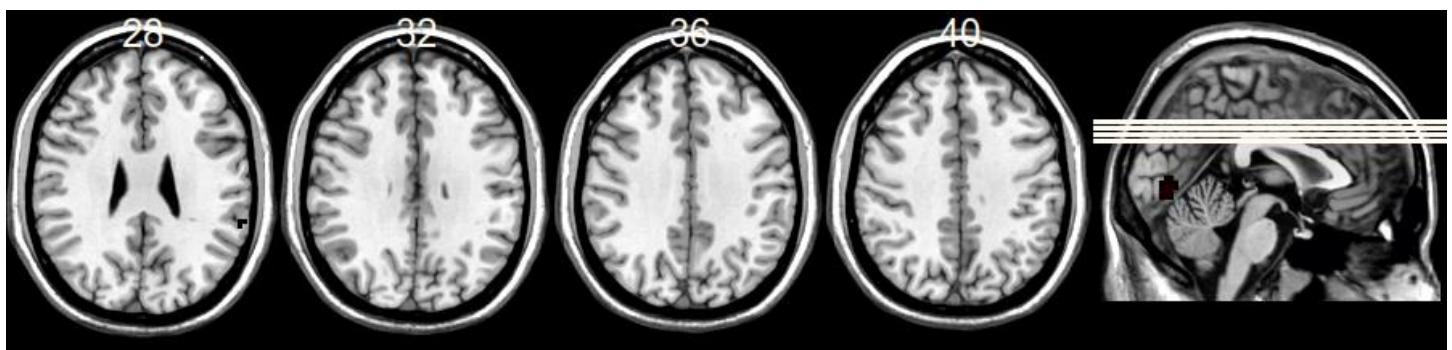


Response

Double lateral triangle points.



Auditory Perception

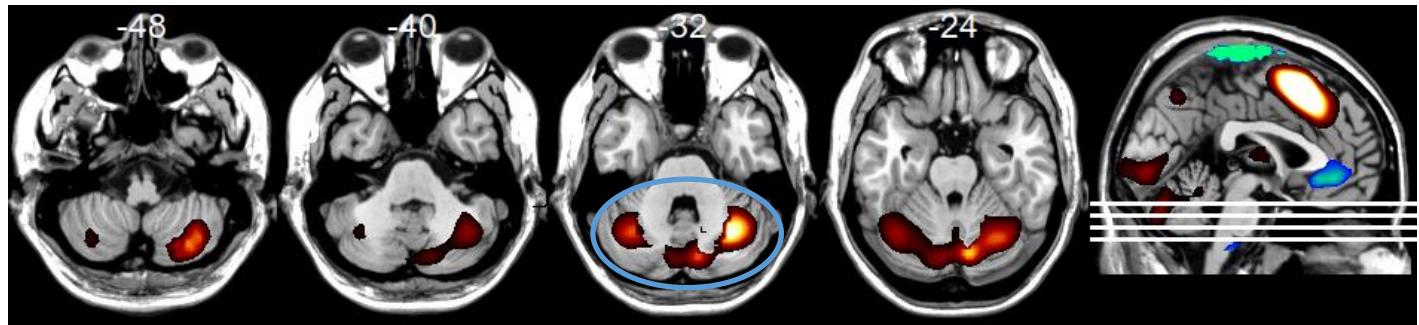


Maintaining Internal Attention (MAIN)
 Previous Names: Access to Internally Stored Information (AISI)
 Internal Attention (INT)



3. Right-Handed Crab Claw: 24, 32, 40, 48

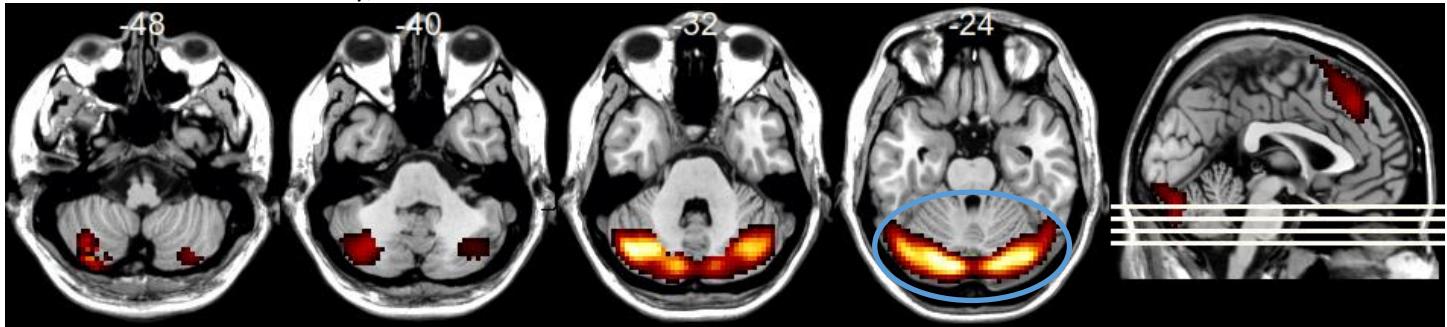
Right-dominant activity in crab claw formation, most apparent in slice -32.



Other Networks:

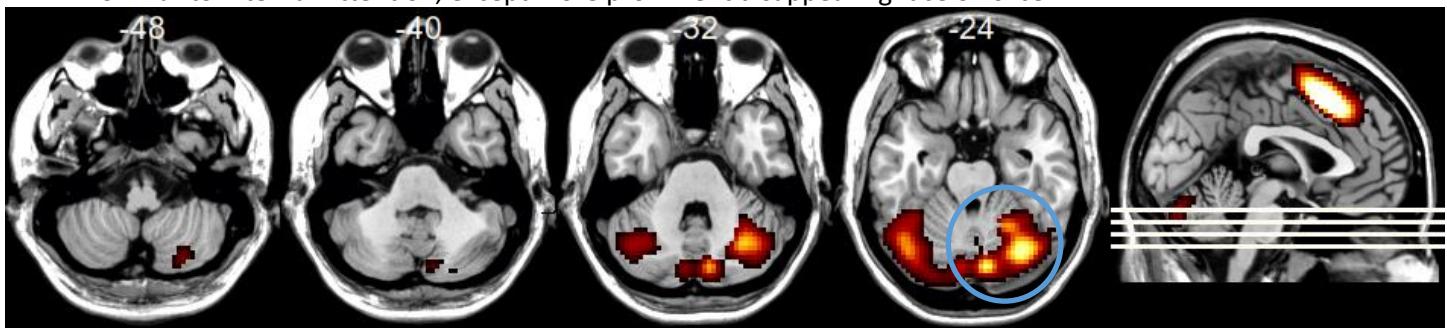
Re-Evaluation

Bilateral wider activity, different on slice -24.



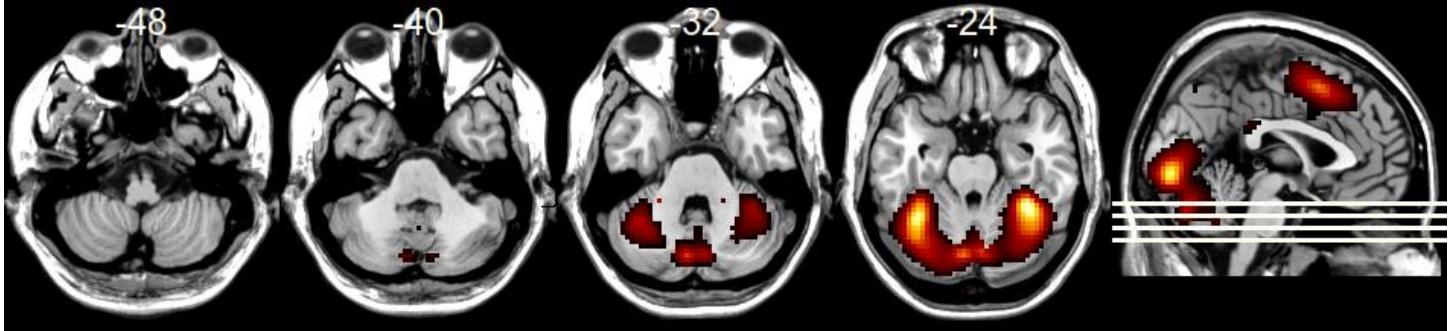
Language Network

Similar to Internal Attention, except more prominent disappearing face on slice -24.



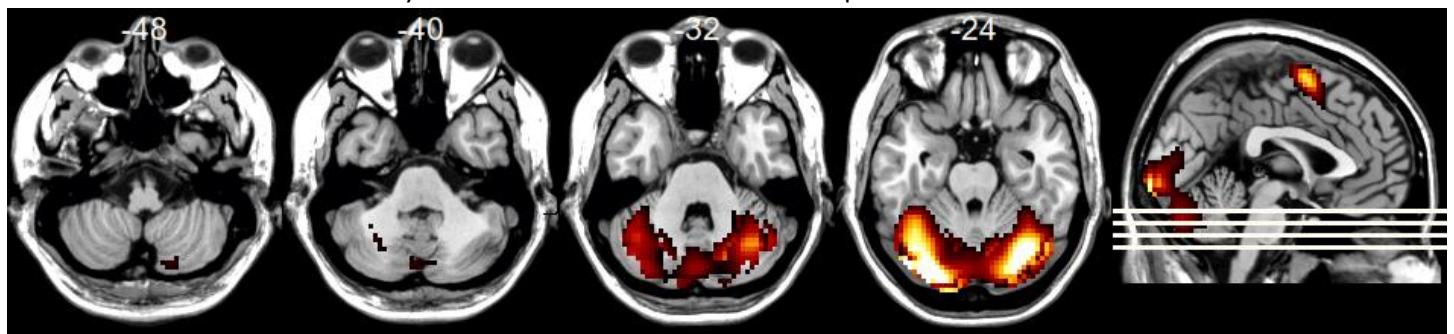
Multiple Demand Network

Bilateral and more activity on slice -24 than -32 which is more anterior than Initiation.



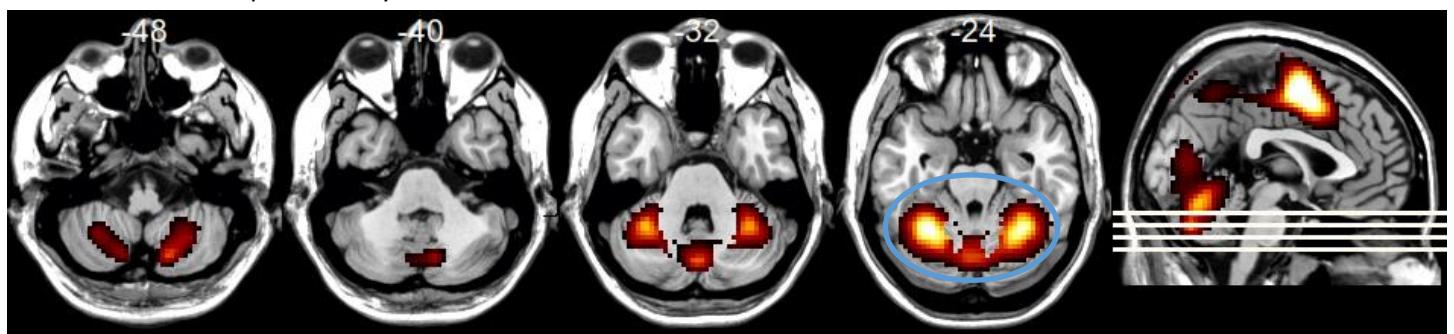
Initiation

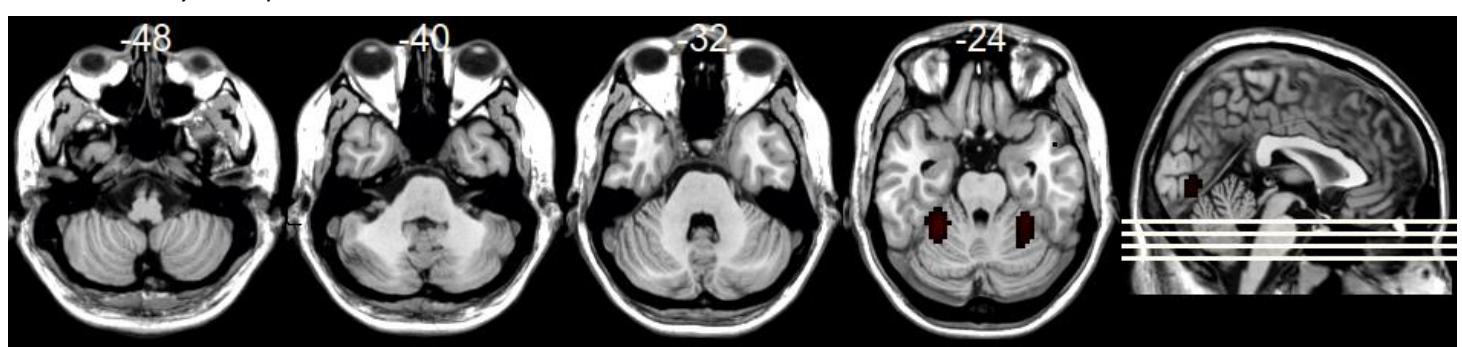
Bilateral and more activity on slice -24 than -32 which is more posterior than External Attention.



Response

Bilateral compact activity more medial in slice -24.



Auditory Perception


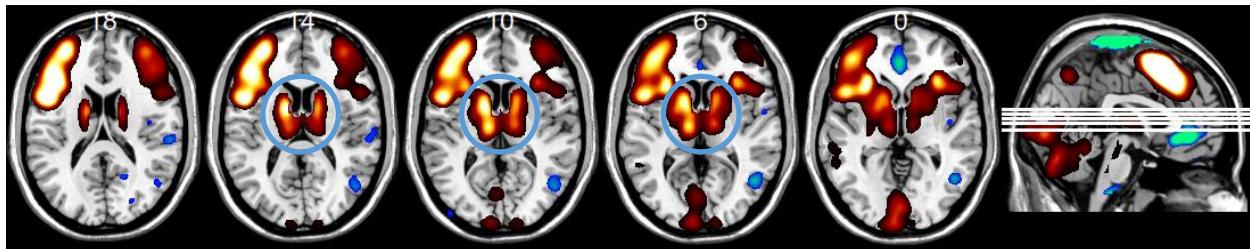
Maintaining Internal Attention (MAIN)

Previous Names: Access to Internally Stored Information (AISI)
Internal Attention (INT)



4. Found a Peanut: 90, 86, 82, 78, 72

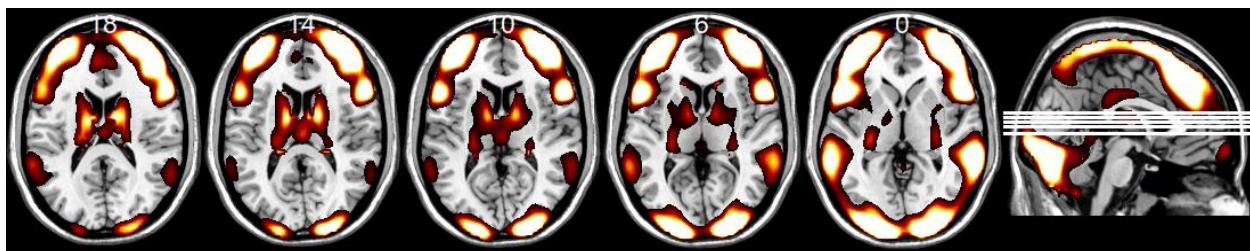
Two peanuts, slightly left-dominant.



Other Networks:

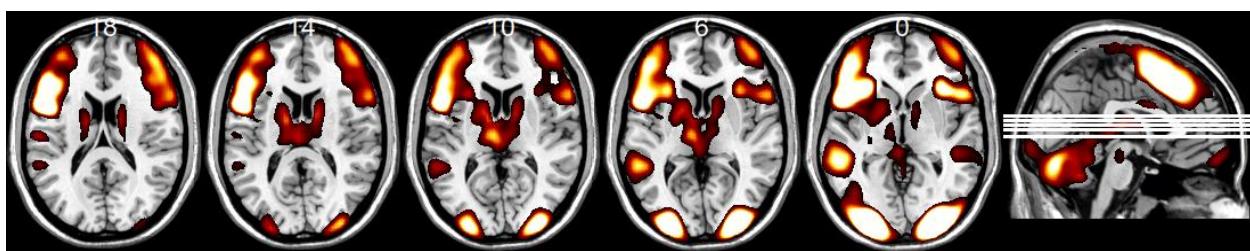
Re-Evaluation

Activity more prominent on slice 14 than 6, and less peanut shape.



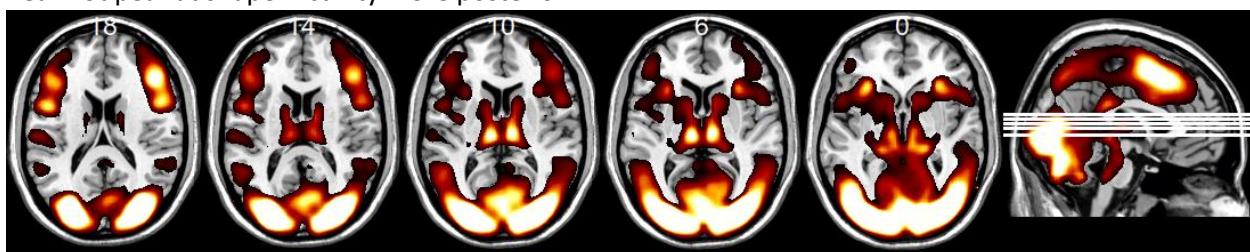
Language Network

Muted peanut activity, more left-posterior.



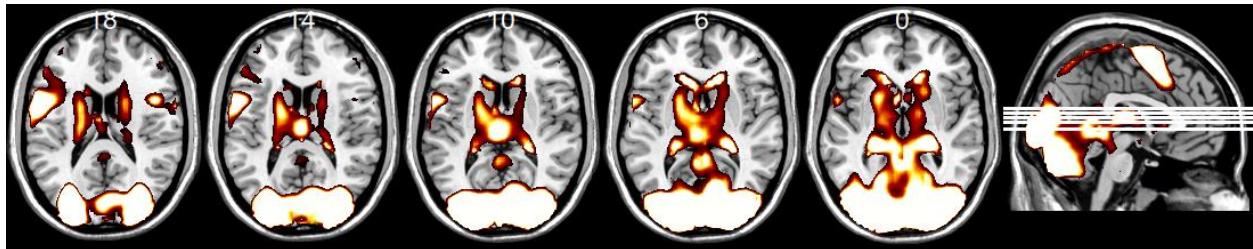
Multiple Demand Network

Pear not peanut shape. Activity more posterior.



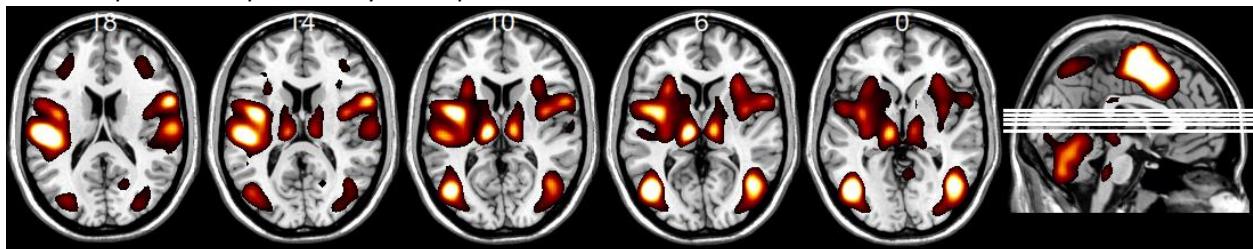
Initiation

No distinct peanut shape, activity left-lateralized and more medial.



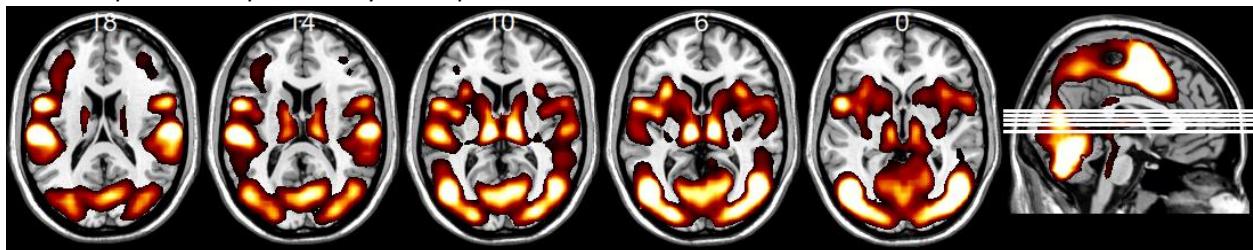
One-Handed Response

Pear not peanut shape. Activity more posterior.



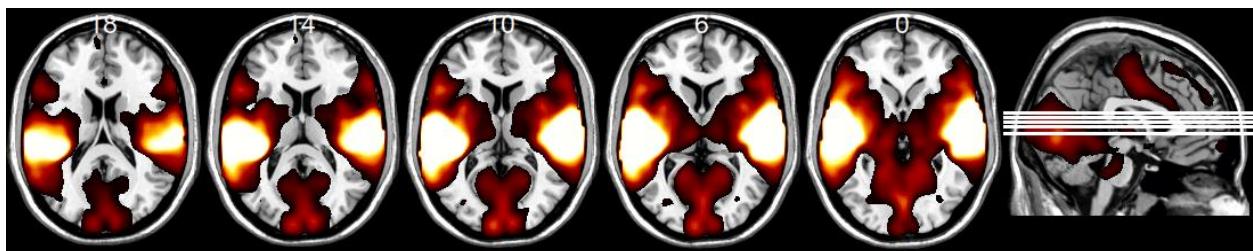
Two-Handed Response

Pear not peanut shape. Activity more posterior.



Auditory Perception

No peanut activity.

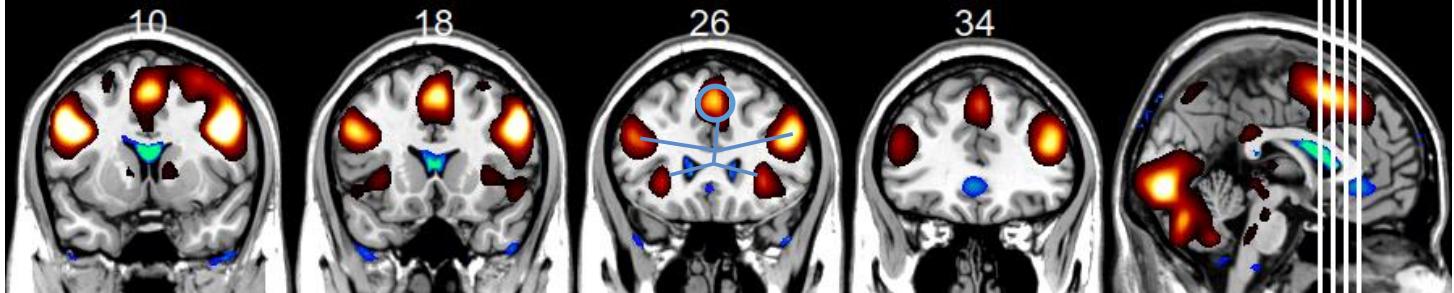


Multiple Demand Network (MDN)
 Previous Names: Sustained Attention (SATT),
 External Attention (EXT)



1. Jumping Jack Flash: 136,144,152,160

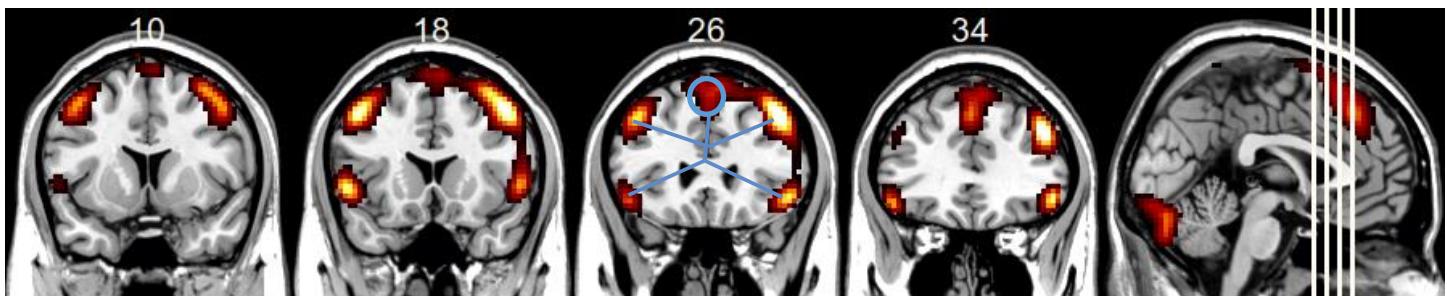
Bilateral activity in head, hands and feet, prominent on slice 18 and/or 26.



Other Networks:

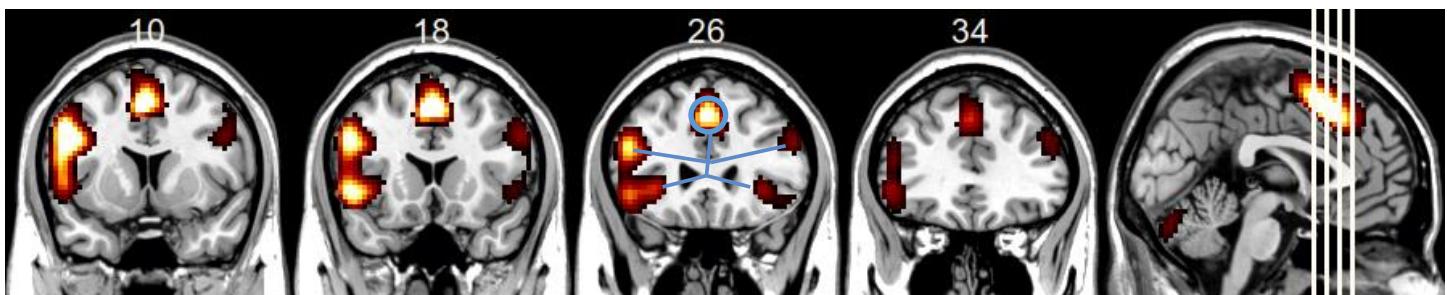
Re-Evaluation

Hands and feet more spread out. Head less prominent.



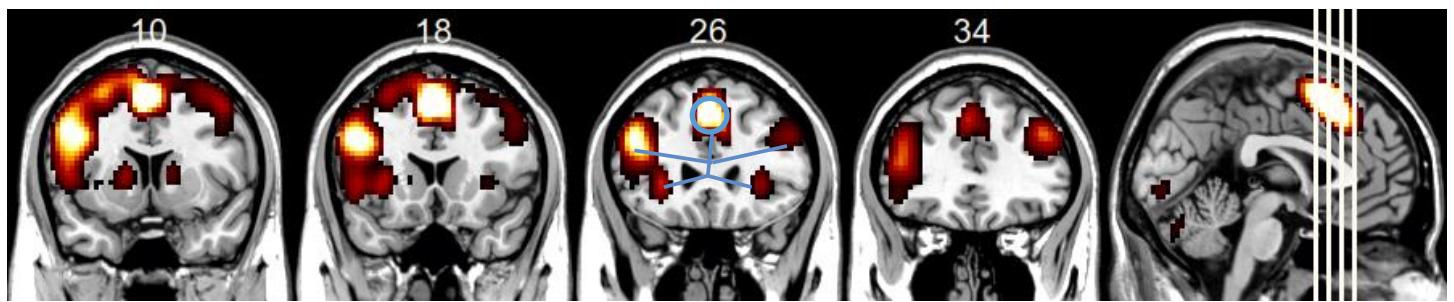
Language Network

Left-dominant activity. Left foot more lateral.



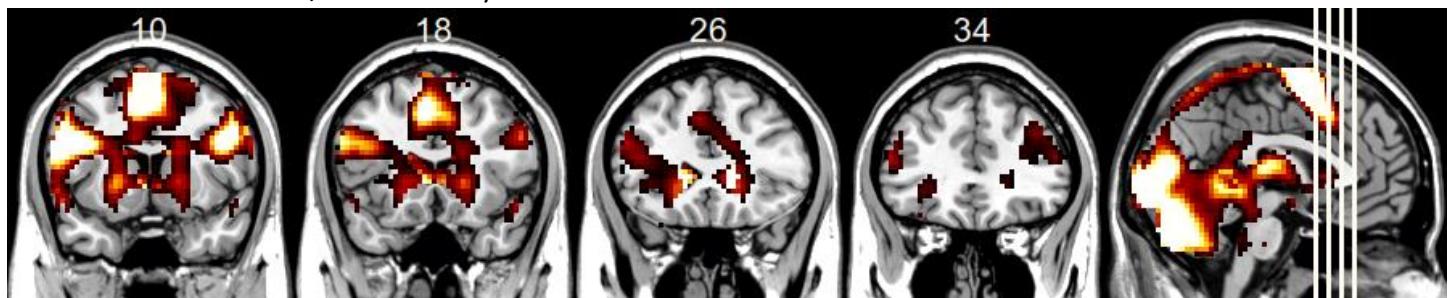
Maintaining Internal Attention

Left hand prominent.



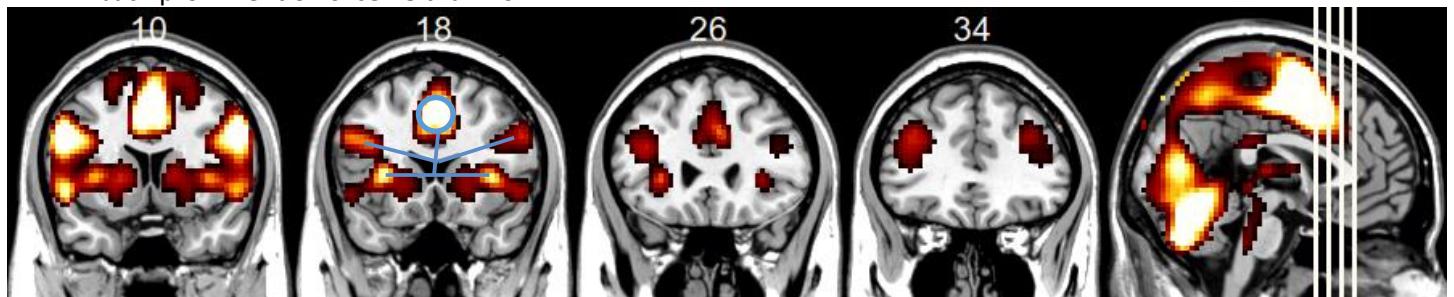
Initiation

No distinct hands/feet. Feet very medial.

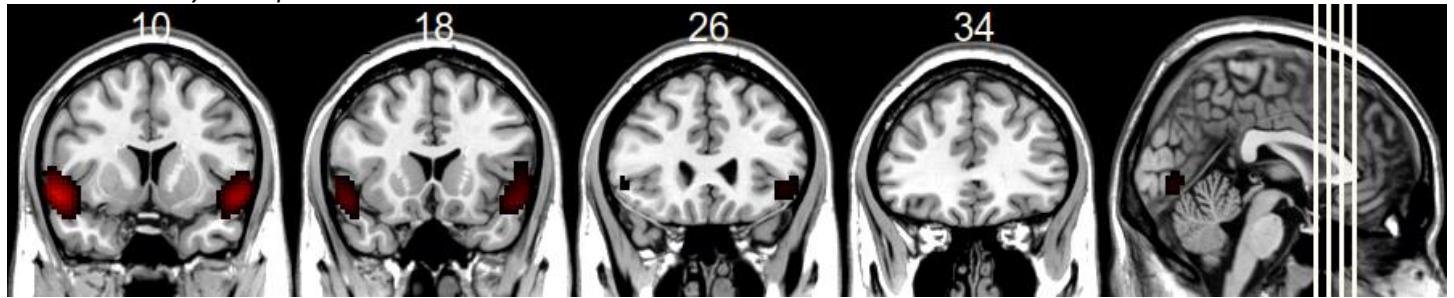


Response

Jack prominent on slice 18 than 26.



Auditory Perception

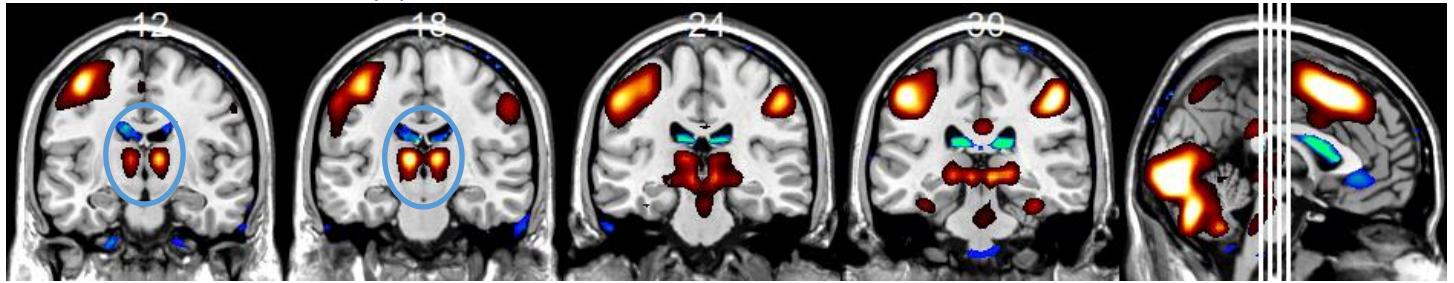




Multiple Demand Network (MDN)
 Previous Names: Sustained Attention (SATT),
 External Attention (EXT)

2. Ape Nostrils: 114, 108, 102, 96

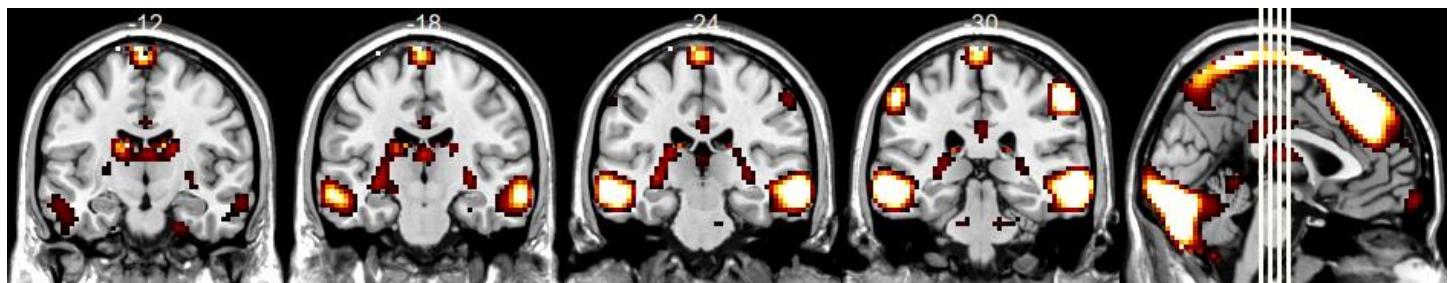
Bilateral central activity, prominent on slices -12 or -18.



Other Networks:

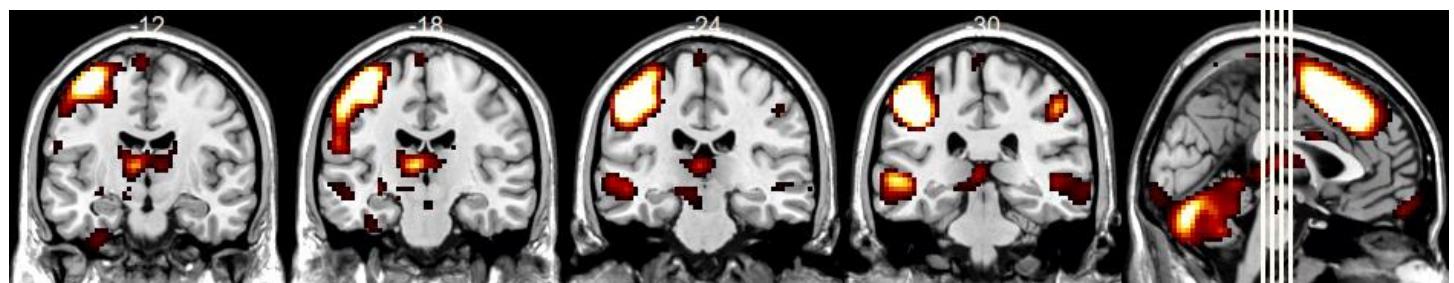
Re-Evaluation

No distinct nostrils and activity more lateral and superior.



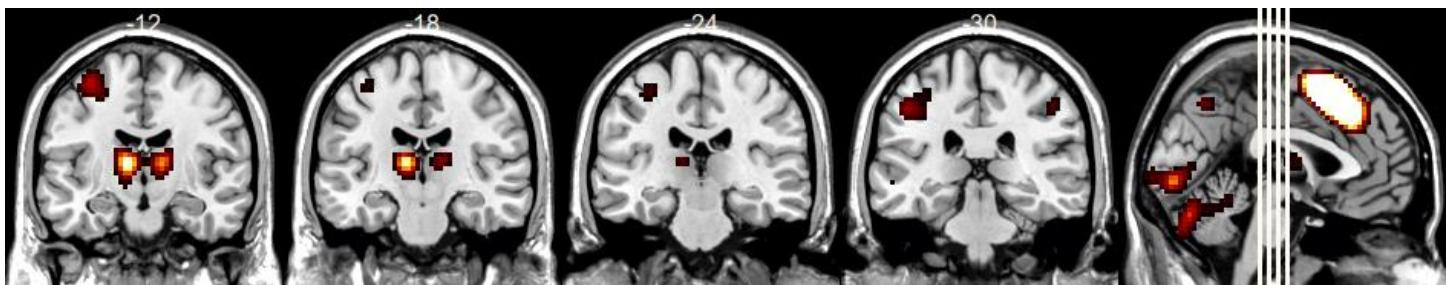
Language Network

Not distinct and left-dominant activity.



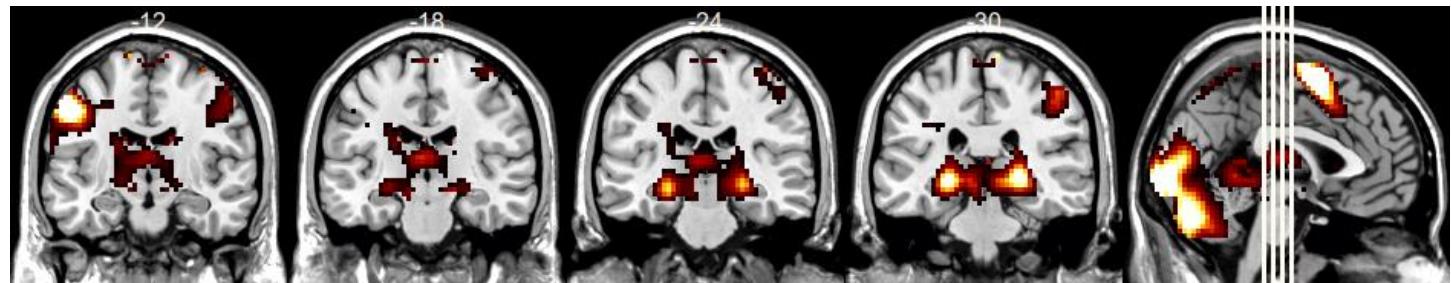
Maintaining Internal Attention

Left-dominant nostrils.



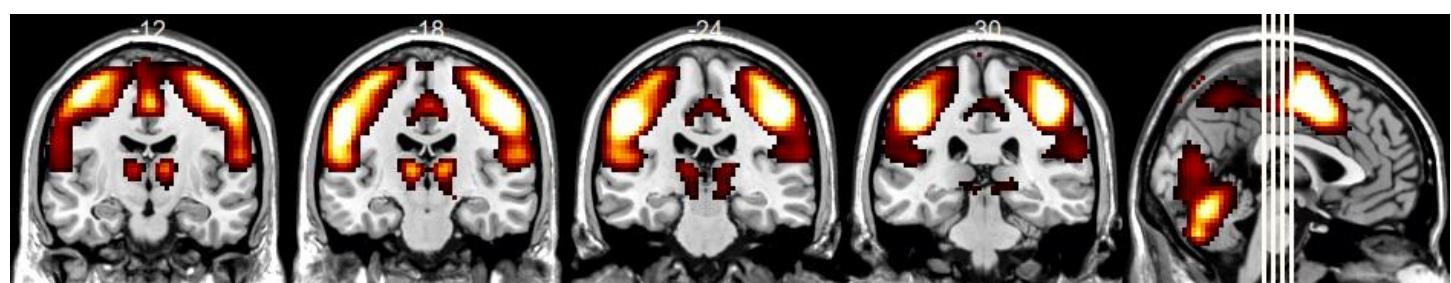
Initiation

No distinct nostrils.

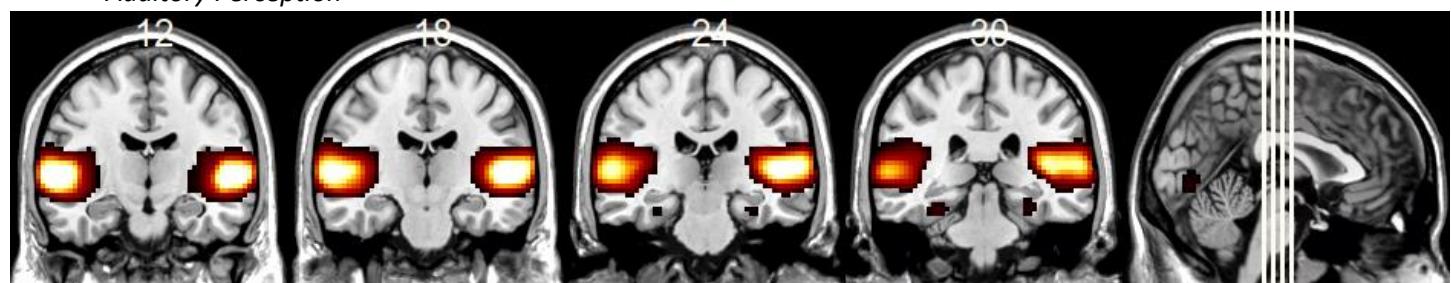


Response

Nostrils with ape hair.



Auditory Perception

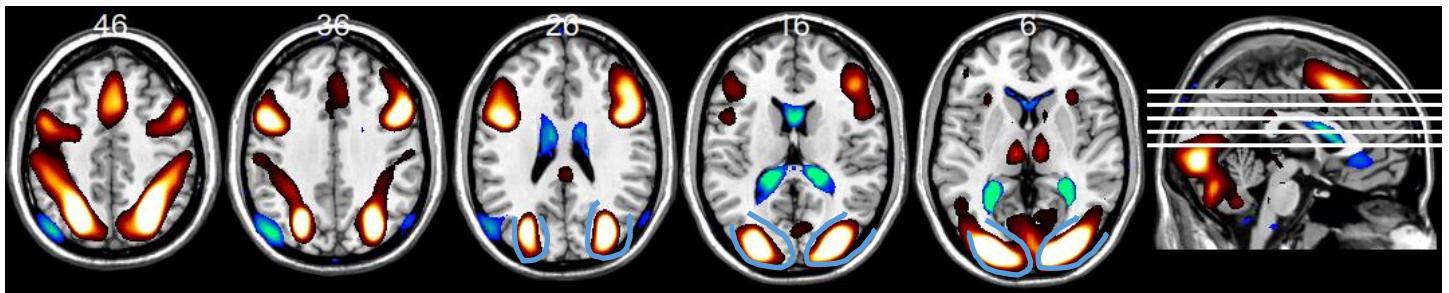


Multiple Demand Network (MDN)
 Previous Names: Sustained Attention (SATT),
 External Attention (EXT)



3. Flexing Hands: 118, 108, 98, 88, 78

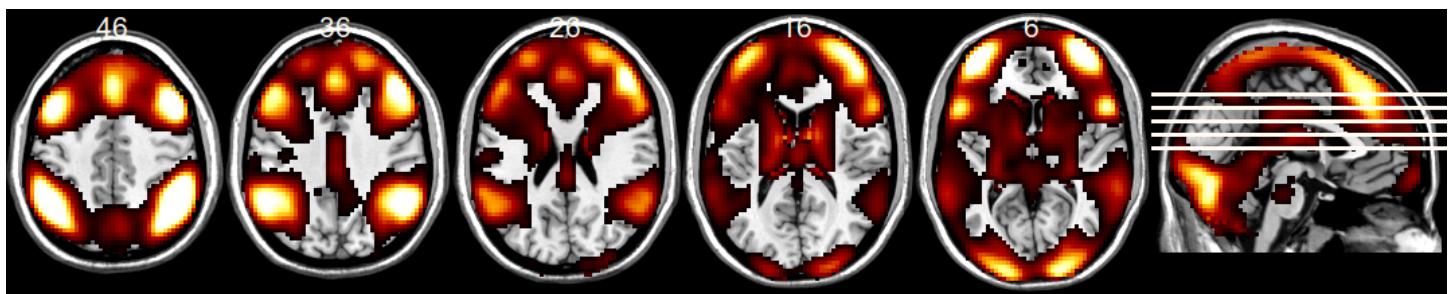
Bilateral activation on posterior border of slices, hands in slice 26 that begin flexing when moving to slice 6



Other Networks:

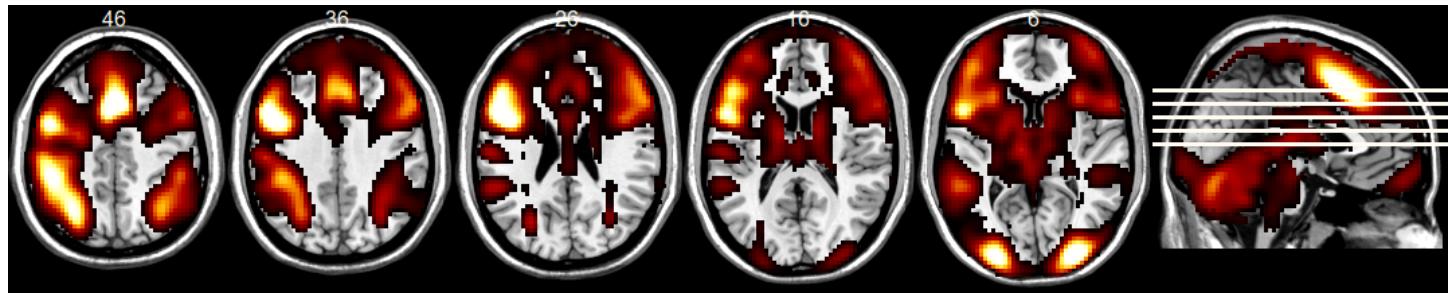
Re-Evaluation

No hands on slices 26 and 16.



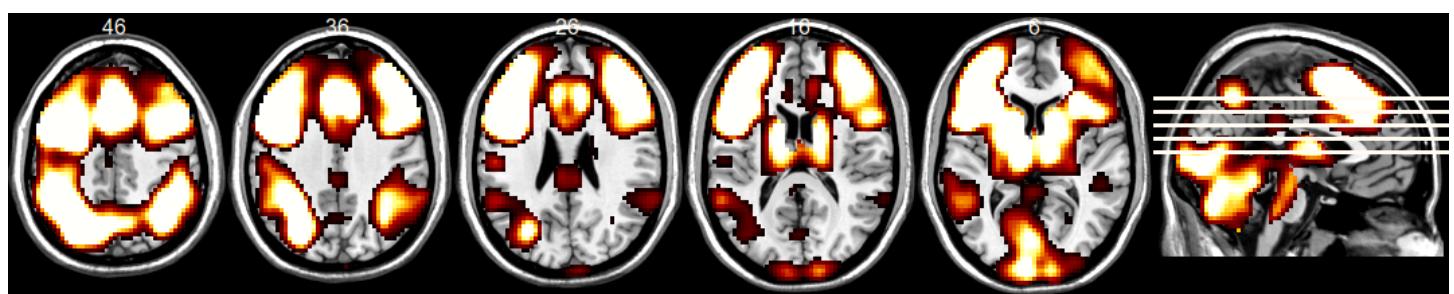
Language Network

No hands on slices 26 and 16.



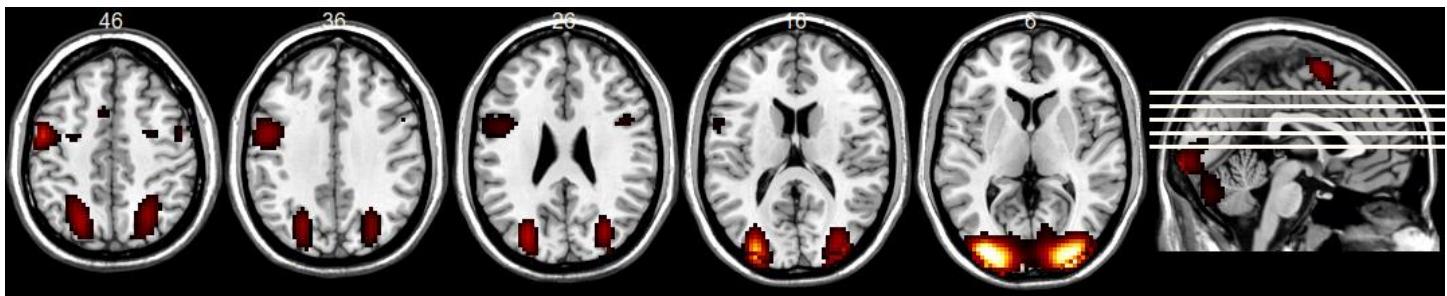
Maintaining Internal Attention

No distinct hands.



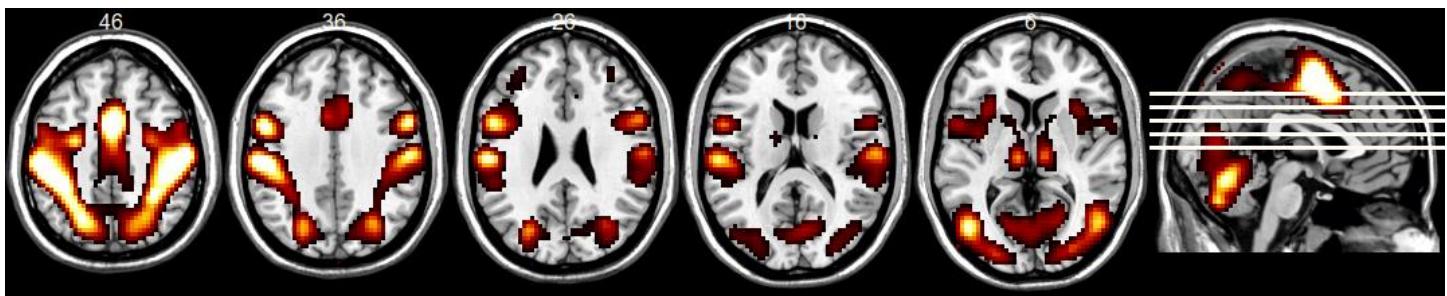
Initiation

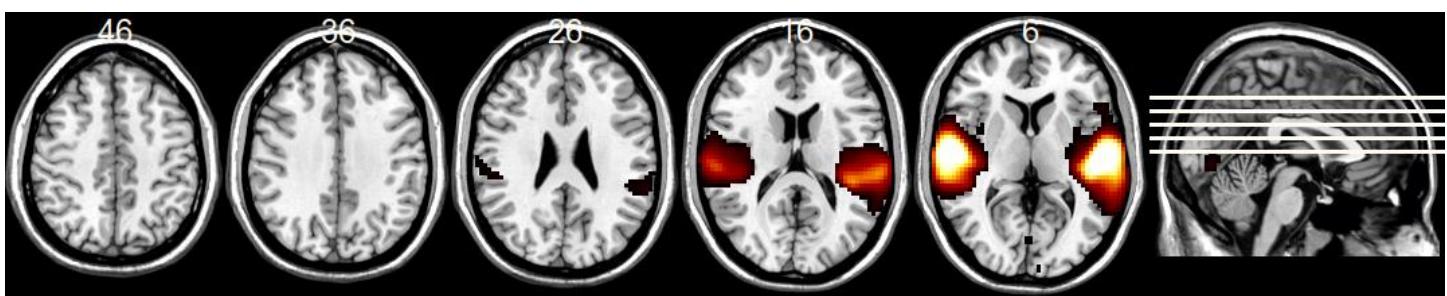
Hands much more prominent on 6 than 26, and left-dominant on slice 16.



Response

Hands less distinct activity and more anterior and lateral on slice 6.



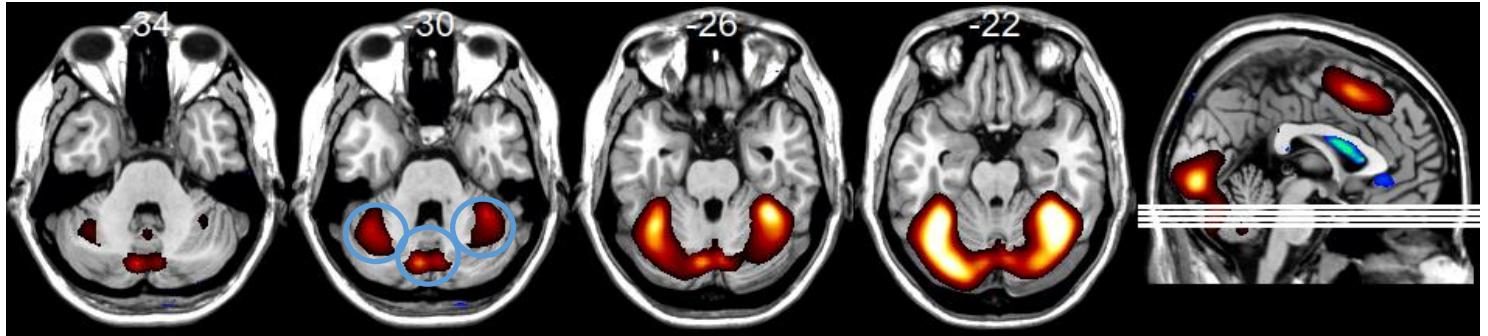
Auditory Perception

Multiple Demand Network (MDN)
 Previous Names: Sustained Attention (SATT),
 External Attention (EXT)



4. Wipe Your Mouth Bear Triple Jam: 38, 42, 46, 50

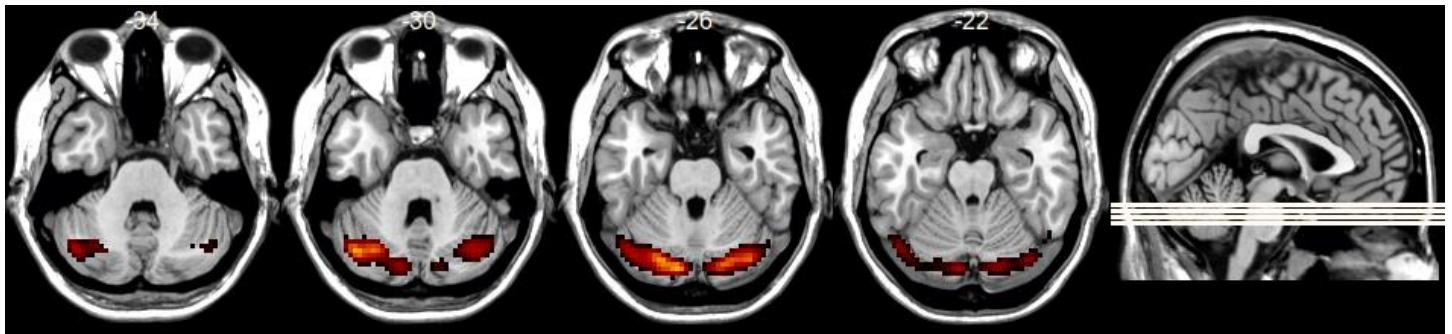
High jam corners on slice -30.



Other Networks:

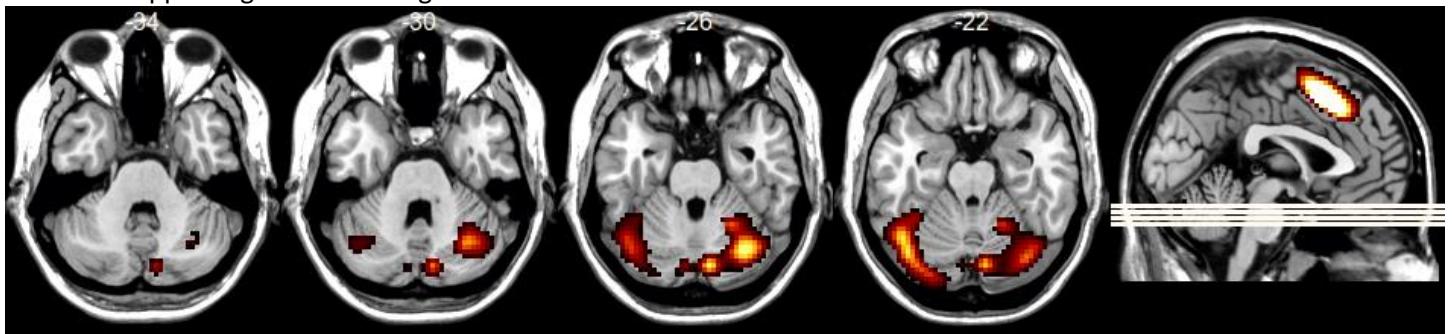
Re-Evaluation

Low jam corners and moustache on slice -26.



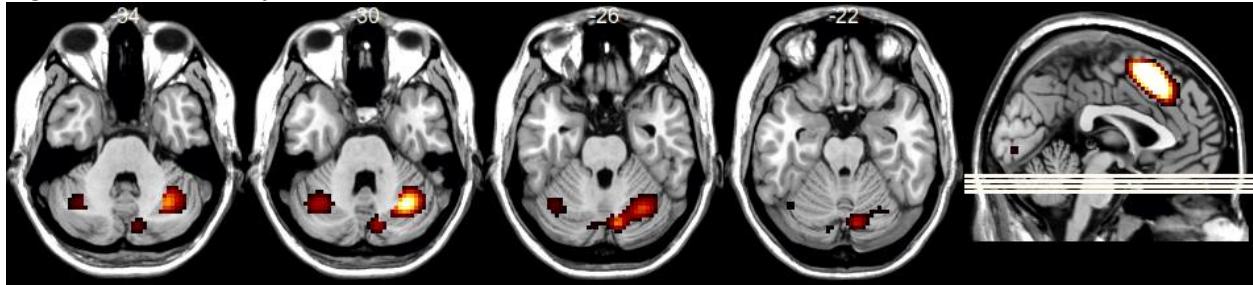
Language Network

Right-dominated low jam corners on slice -30. Prominent left lateral activity on slice -22, with disappearing face on the right.



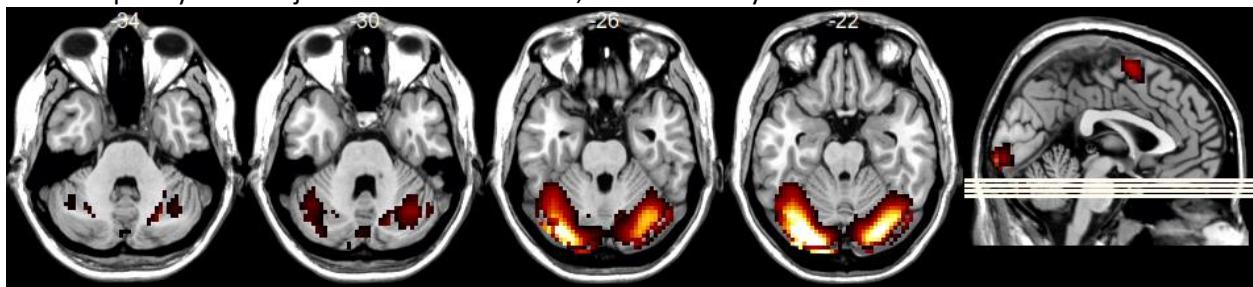
Maintaining Internal Attention

Right-dominated low jam corners on slice -30.



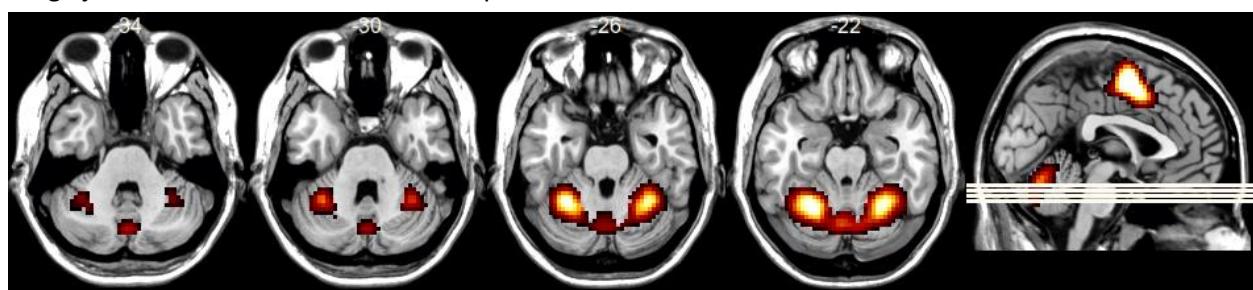
Initiation

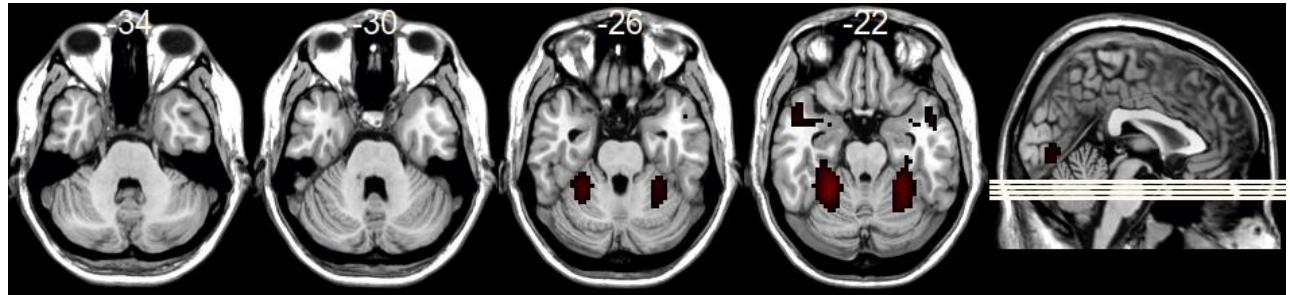
Low and poorly defined jam corners on slice -30, with not really crab on slice -26.



Response

High jam corners on slice -30 with compact crab on slice -26.



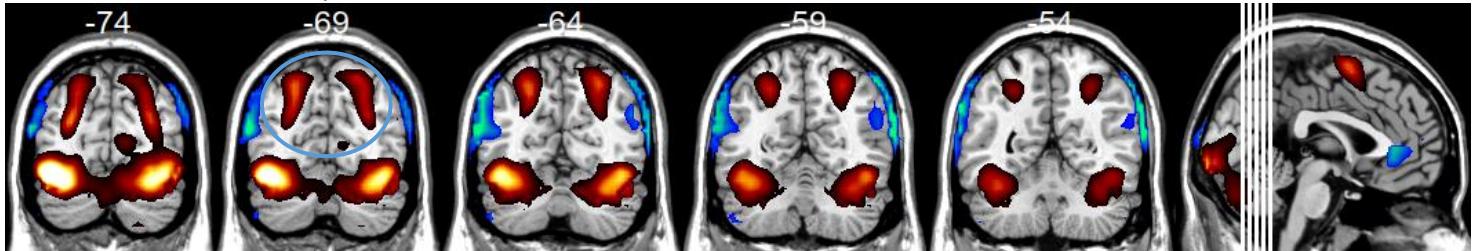
Auditory Perception

Initiation (INIT)

1. Raised Eyebrows: 52, 57, 62, 67, 72



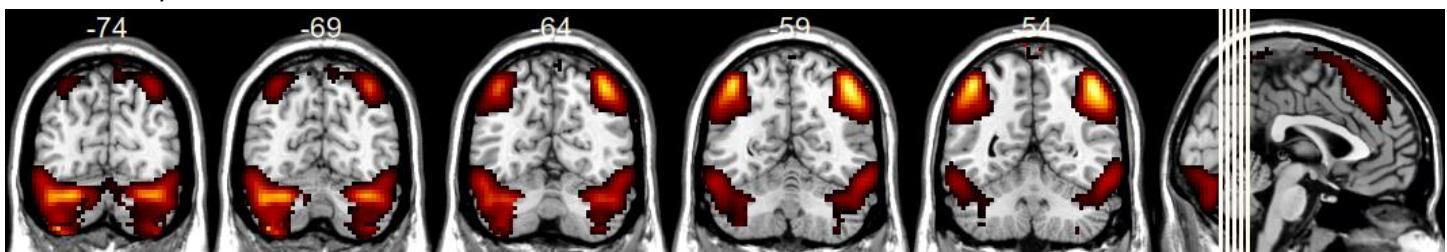
Raised bilateral eyebrows in slices -74 and -69.



Other Networks:

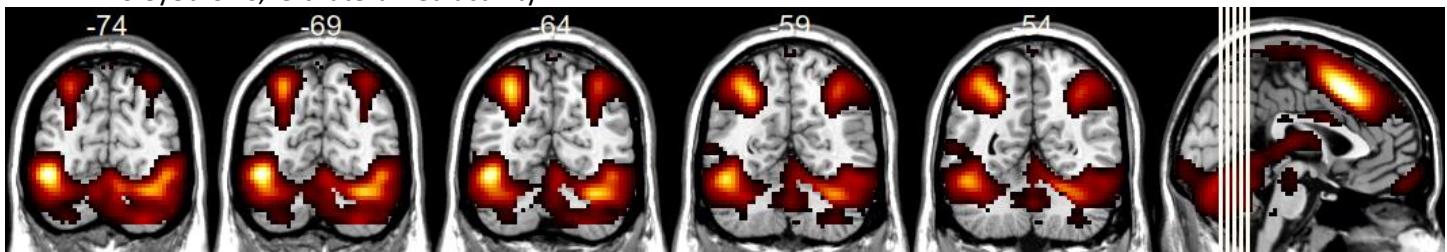
Re-Evaluation

No eyebrows.



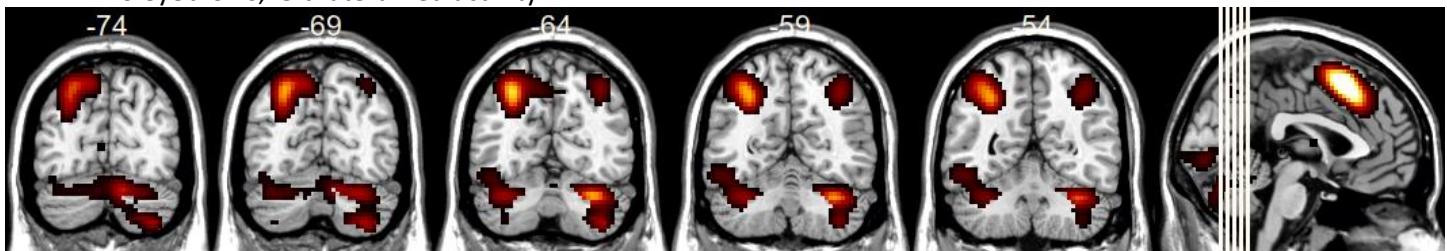
Language Network

No eyebrows, left-lateralized activity.



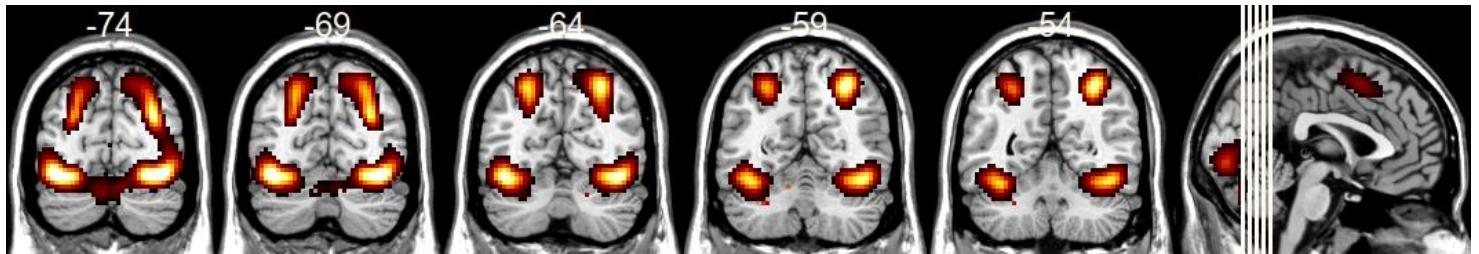
Maintaining Internal Attention

No eyebrows, left-lateralized activity.



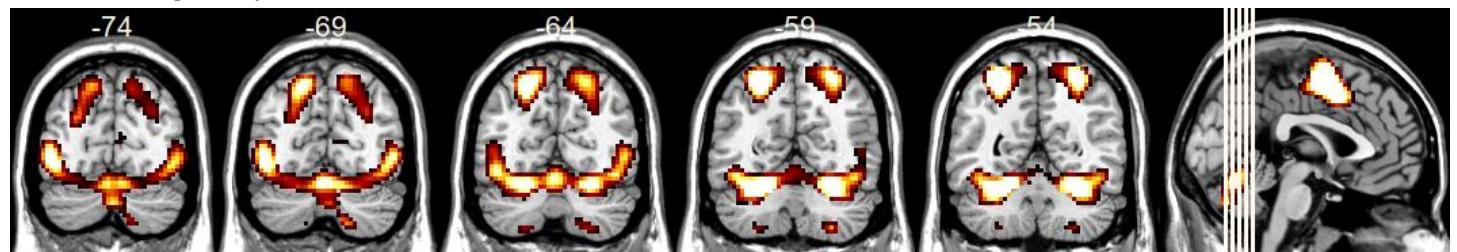
Multiple Demand Network

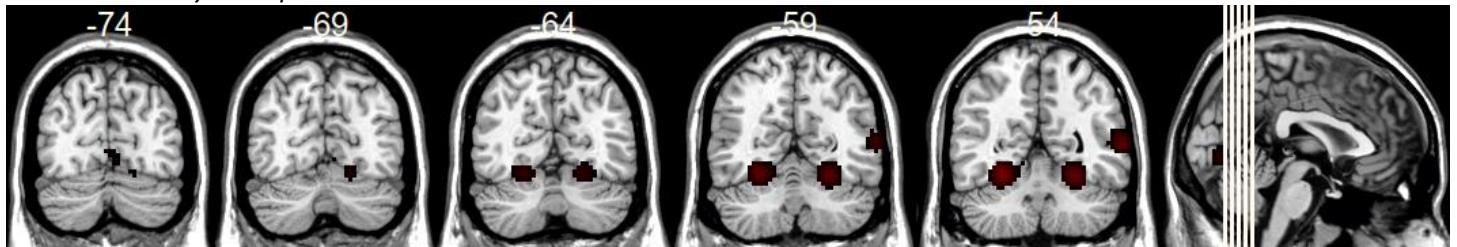
Similar to Initiation.



Response

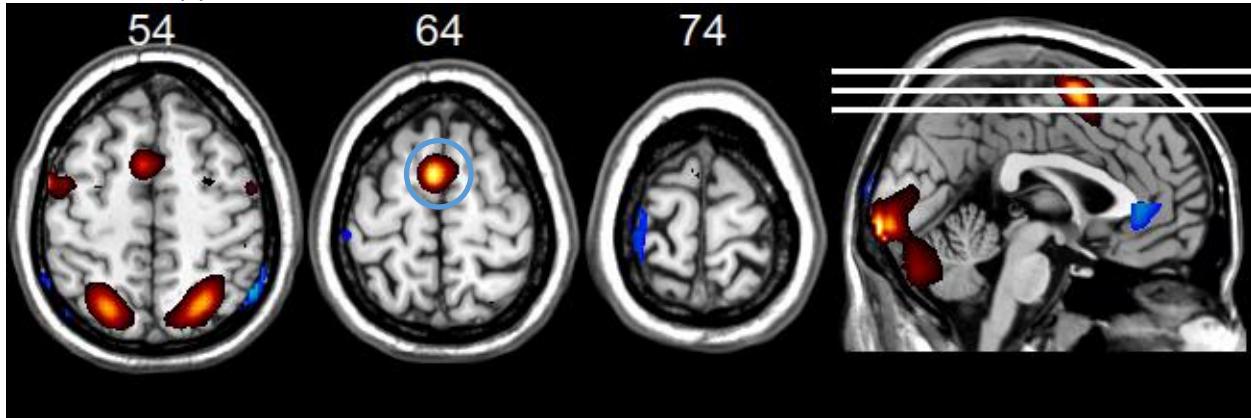
Strong left eyebrow with moustache underneath



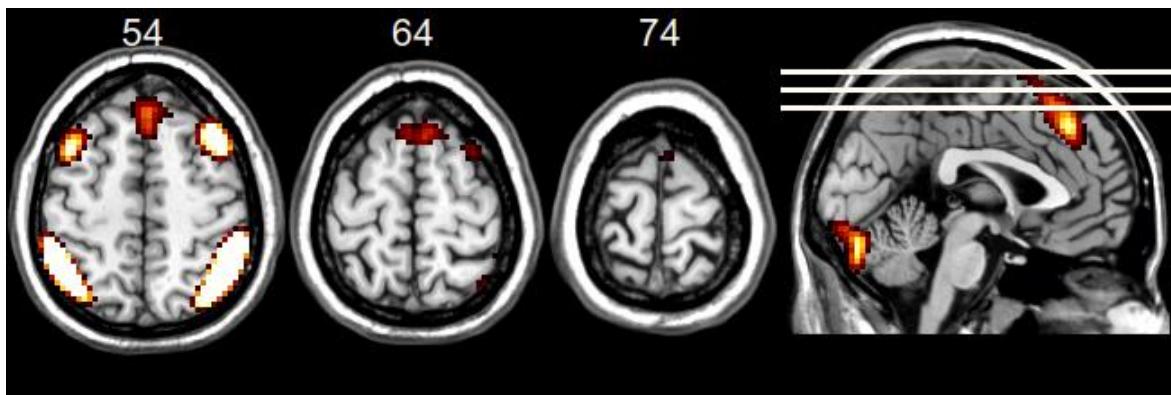
Auditory Perception

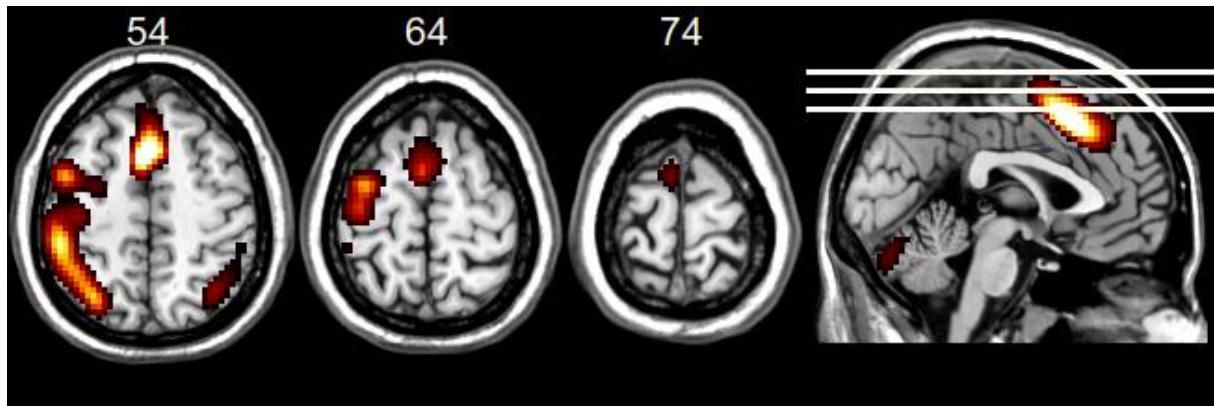
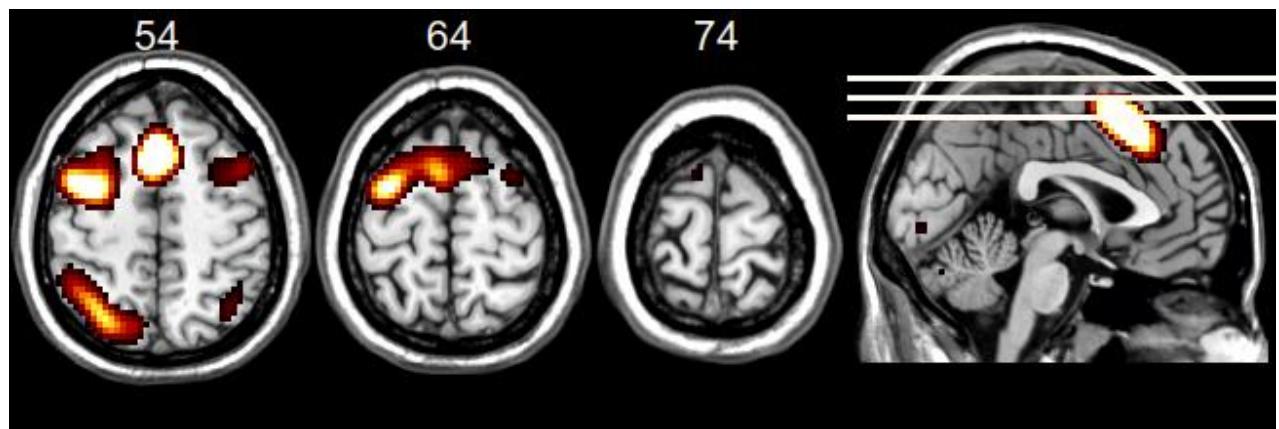
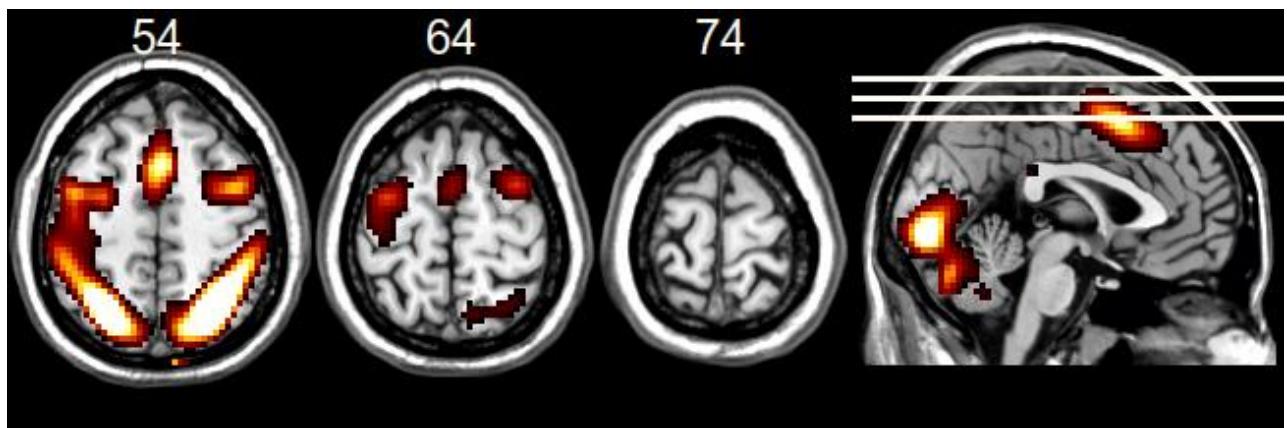
Initiation (INIT)**64****2. When I'm 64: 126, 136, 146**

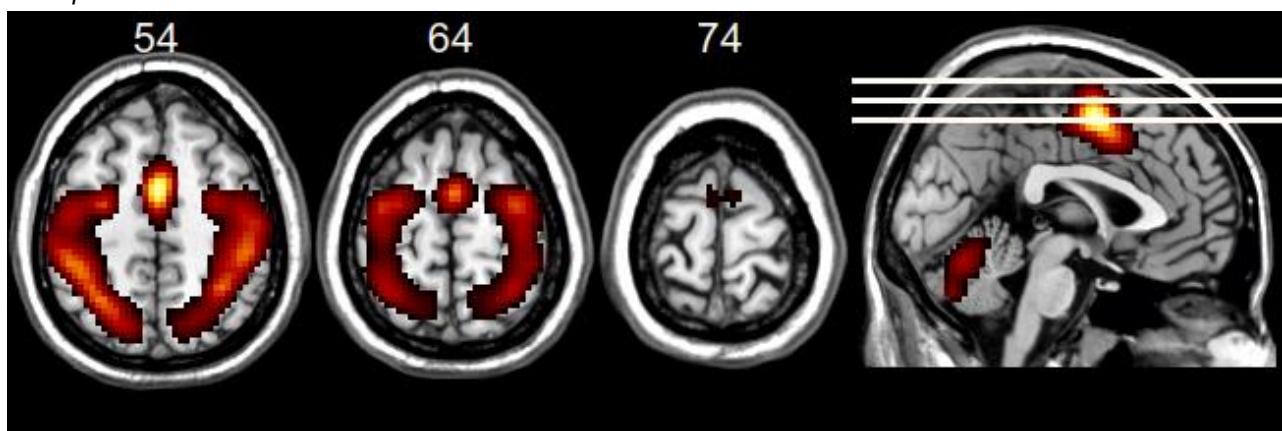
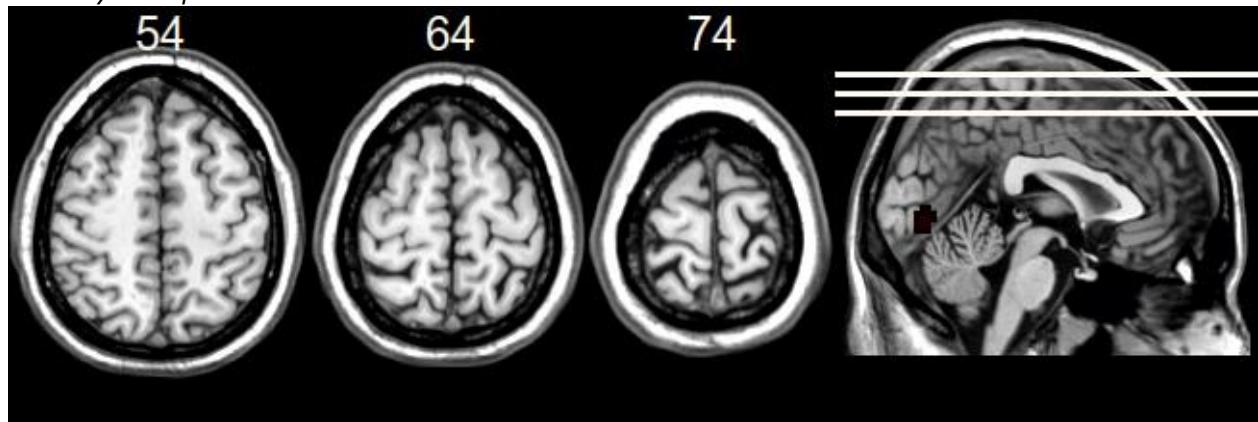
Activity peaks on slice 64 not 54.

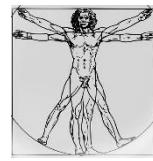
**Other Networks:**

All peak on slice 54 not 64.

Re-Evaluation

Language Network*Maintaining Internal Attention**Multiple Demand Network*

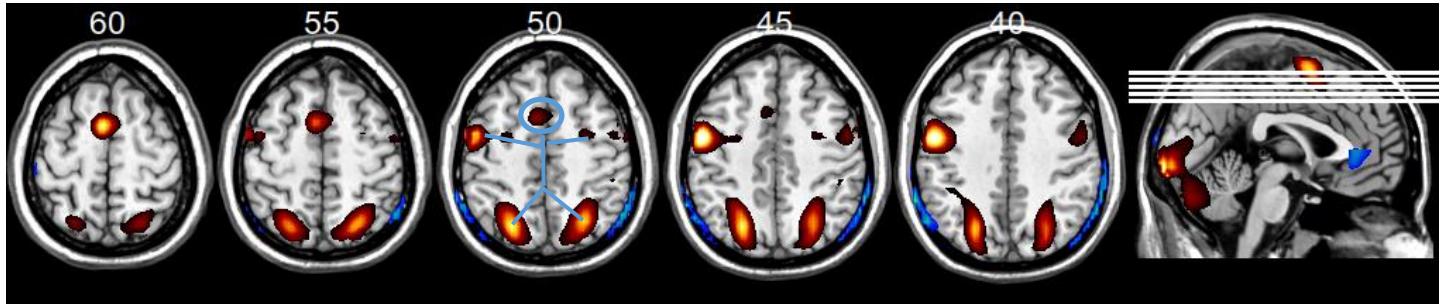
Response*Auditory Perception*



Initiation (INIT)

3. De Divina Proportione Front Guy: 132, 127, 122, 117, 112

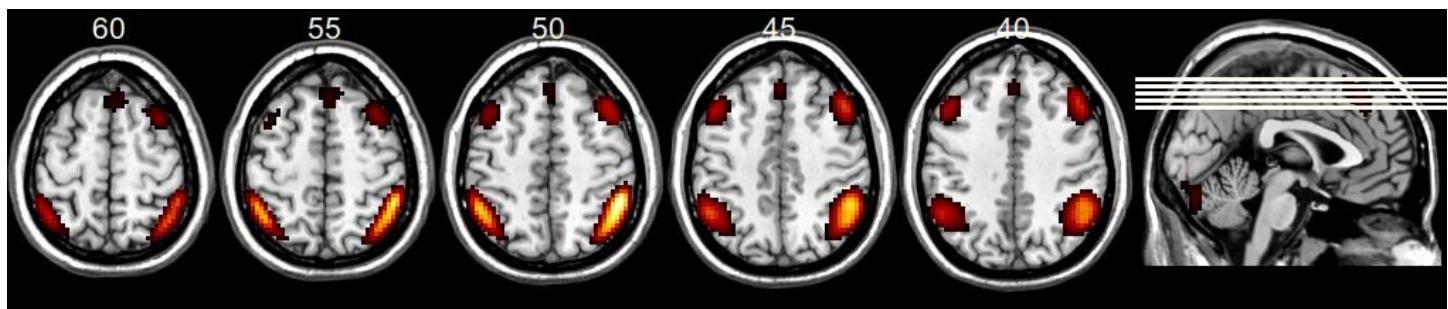
More prominent on slices 55 and 50. Left hand becomes more prominent in slices 45 through 55.



Other Networks:

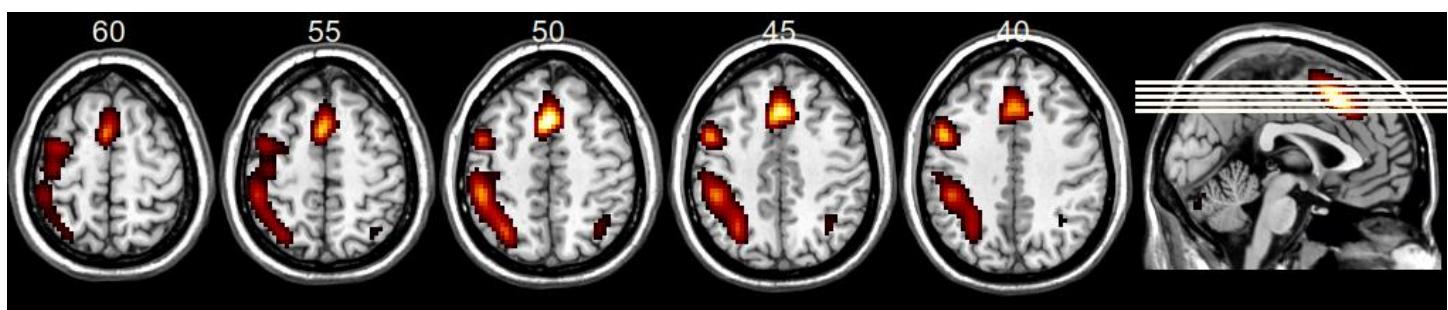
Re-Evaluation

Wide and prominent feet.



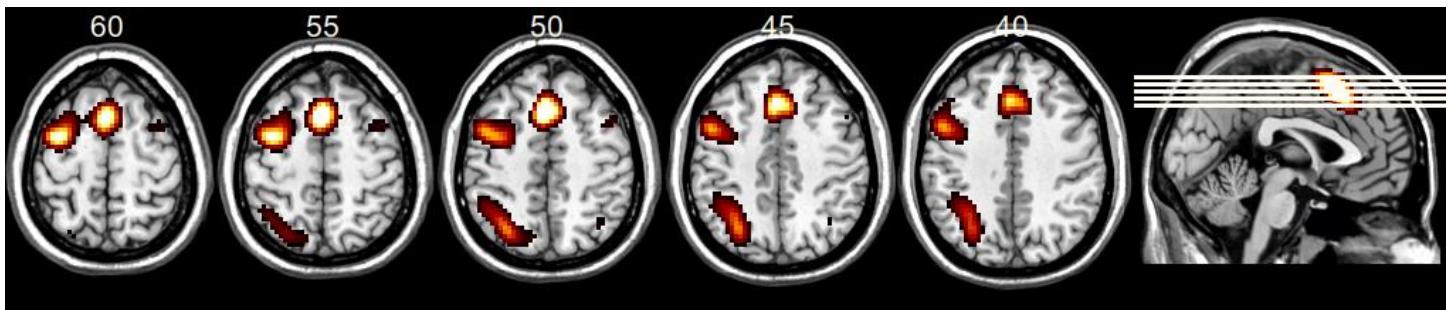
Language Network

Left-lateralized, no distinct lower foot.



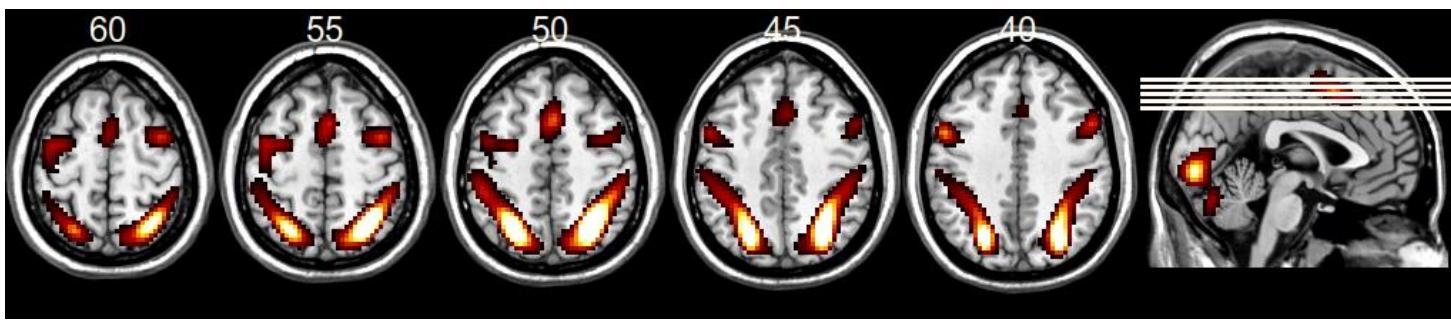
Maintaining Internal Attention

Left-lateralized.



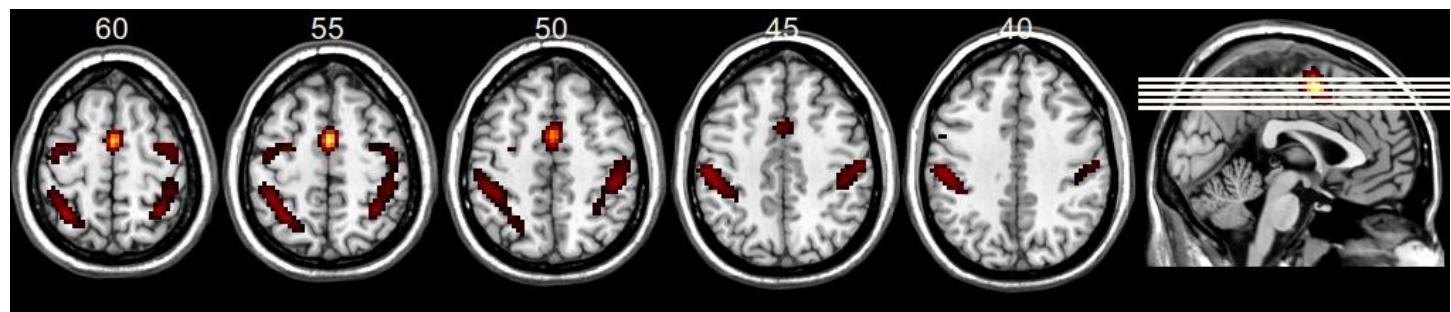
Multiple Demand Network

Prominent and smeared feet.

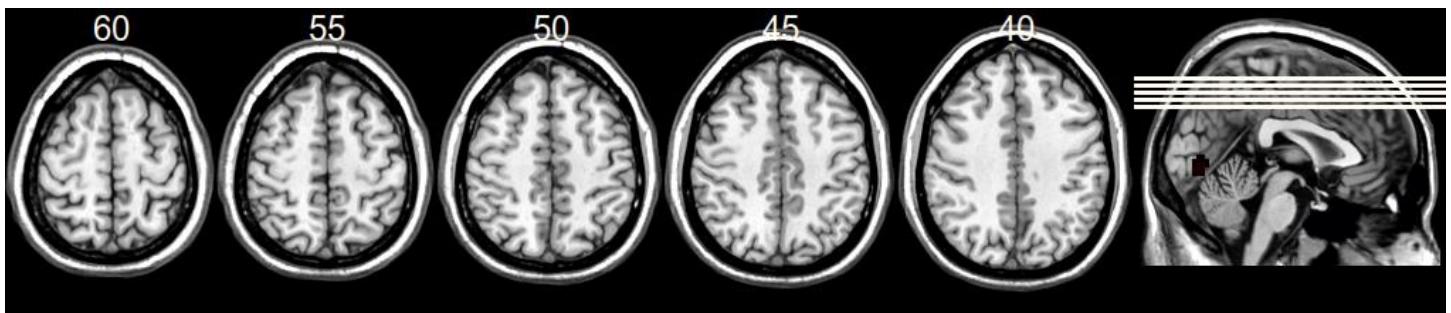


Response

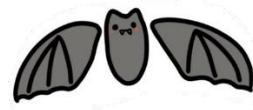
Muted wide legs and low head on slice 60.



Auditory Perception



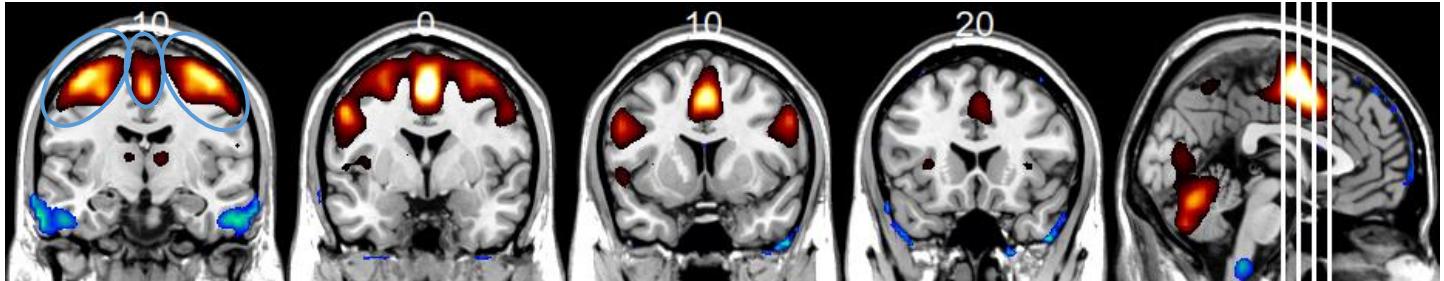
Response



1. Bat (One Sided if One-Handed Response): 116,126,136,146

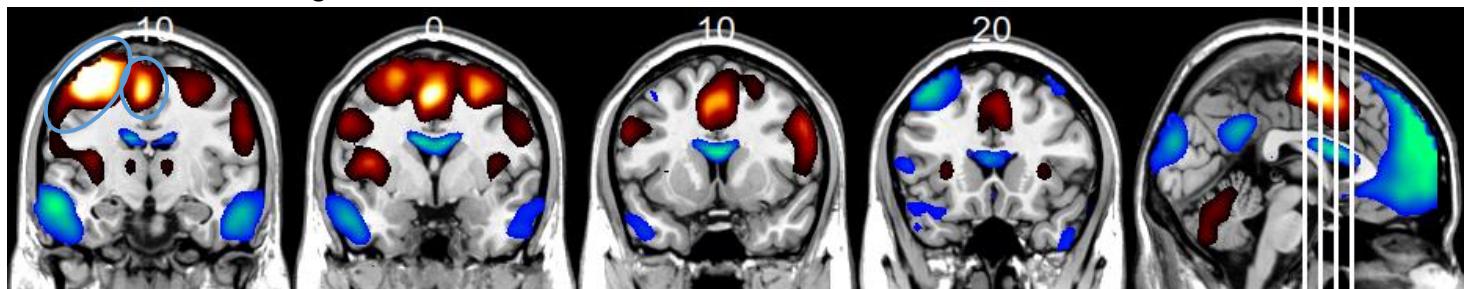
Two-Handed (2RESP)

Bilateral.



Right-Handed (1RESP)

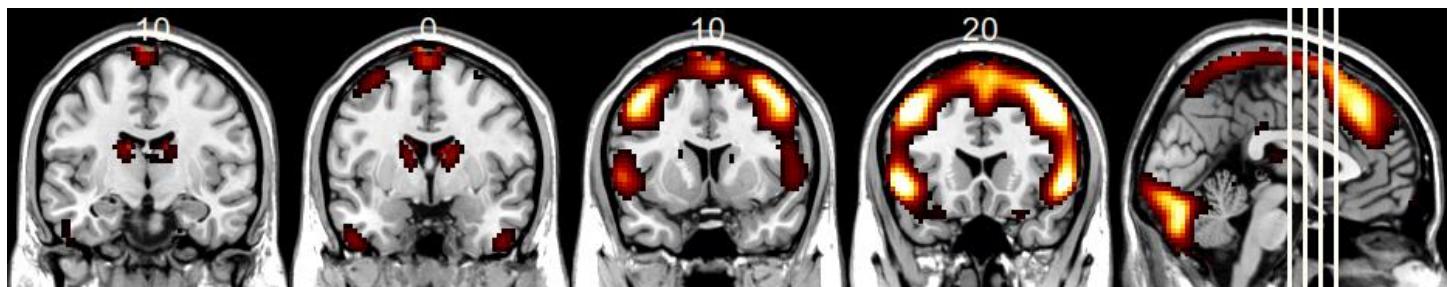
Bat with left wing.



Other Networks:

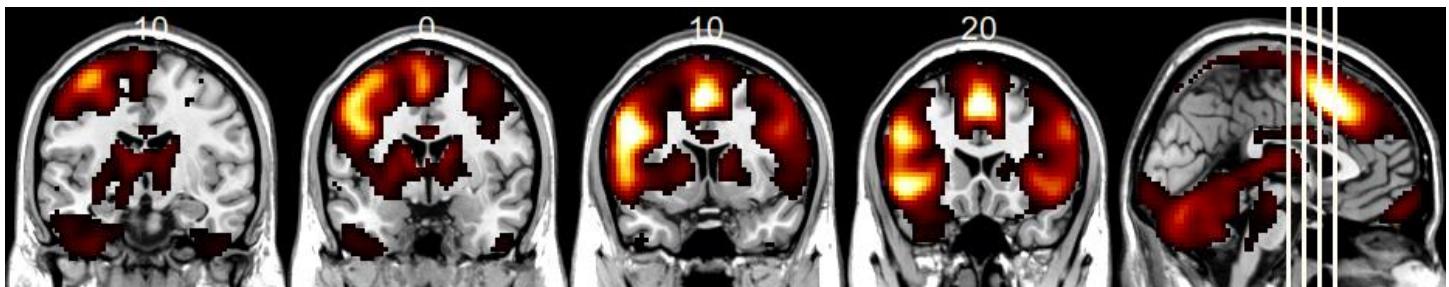
Re-Evaluation

No bat on slices 10 and 0. Wide winged bat appears on slices 10 and 20.



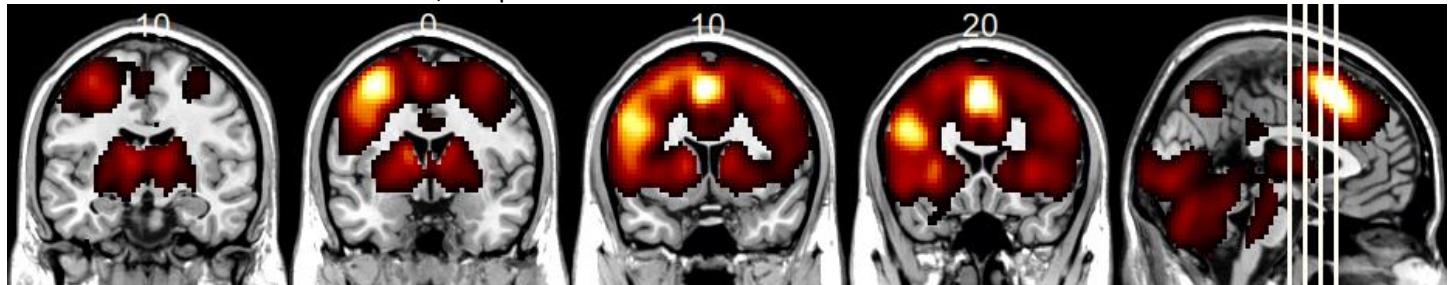
Language Network

Left-dominated winged bat with drooping wings.



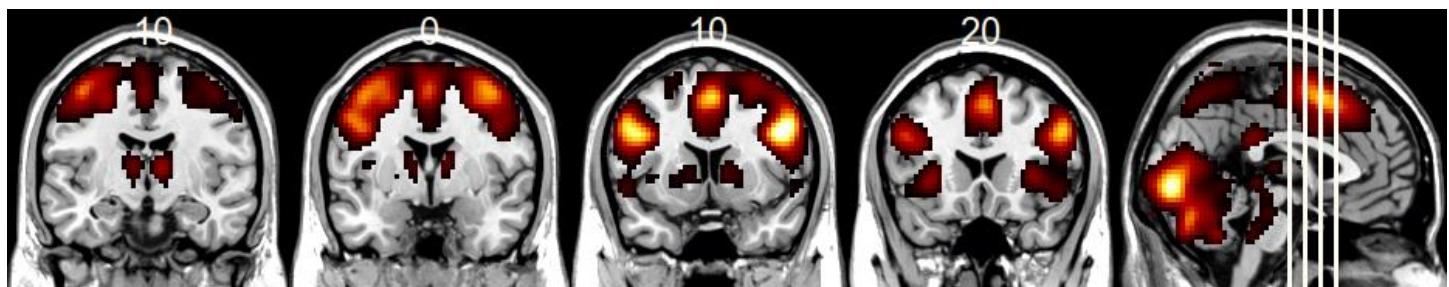
Maintaining Internal Attention

Left-dominant bat on slice 0, not prominent on slice 10.



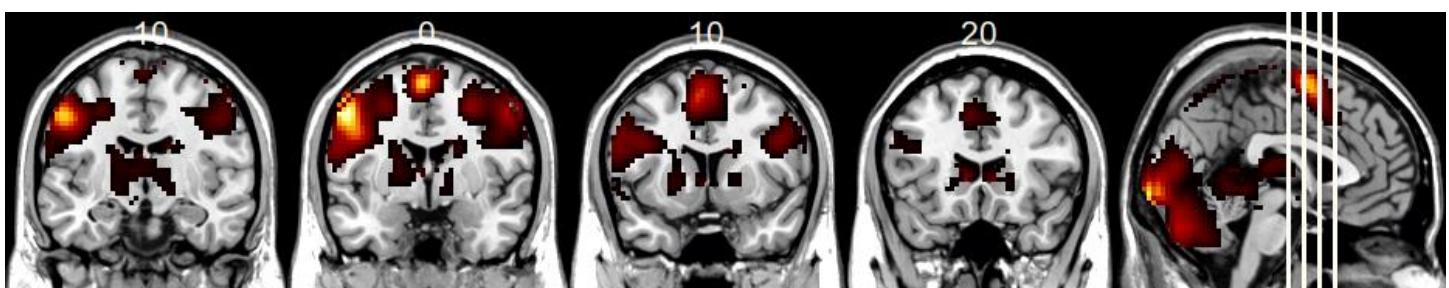
Multiple Demand Network

Bat with droopy wings.

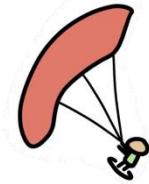


Initiation

Wings not really connected to bat body.



Auditory Perception



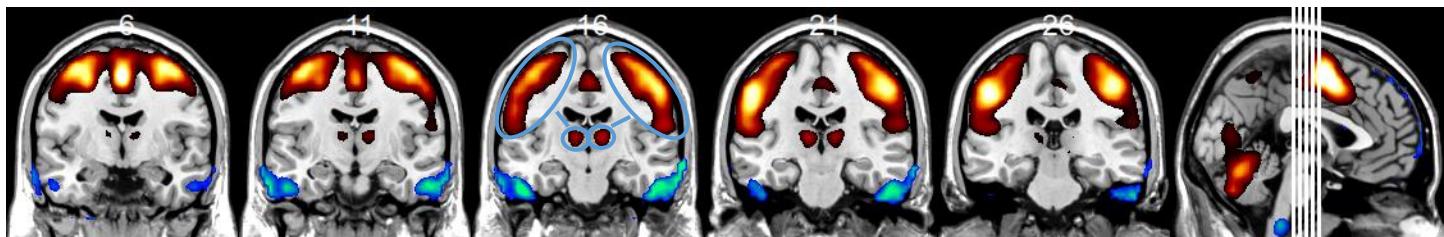
Response

2. Thalamus Kite Surfer: 120, 115, 110, 105, 100

On slice 16. Kite becomes more prominent moving from 16 to 26. Kite is more prominent than thalamus activity.

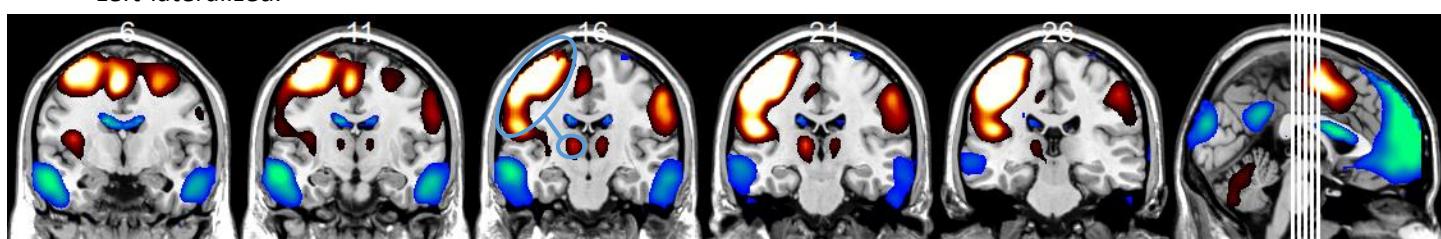
Two-Handed (2RESP)

Bilateral.



Right-Handed (1RESP)

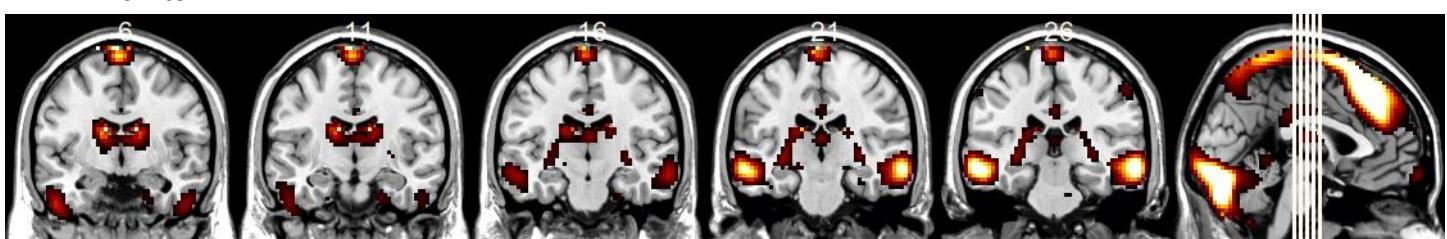
Left-lateralized.



Other Networks:

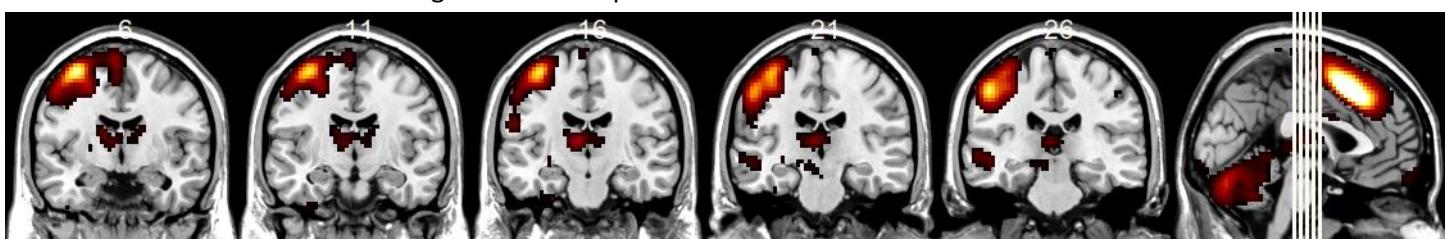
Re-Evaluation

No kite.



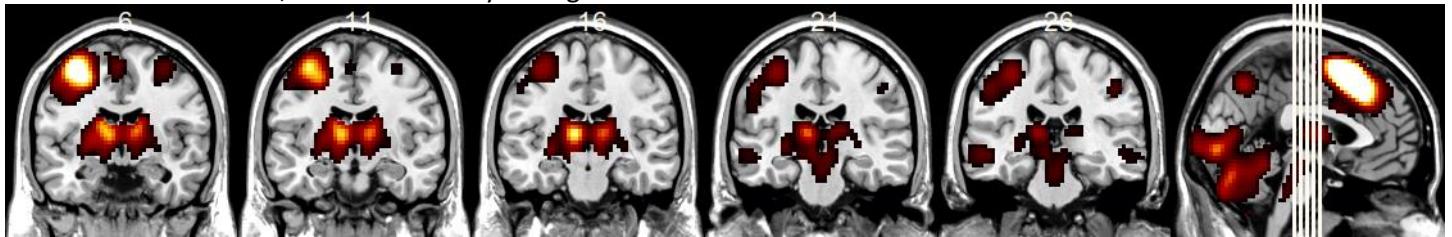
Language Network

Left-lateralized. Similar to right-handed response.



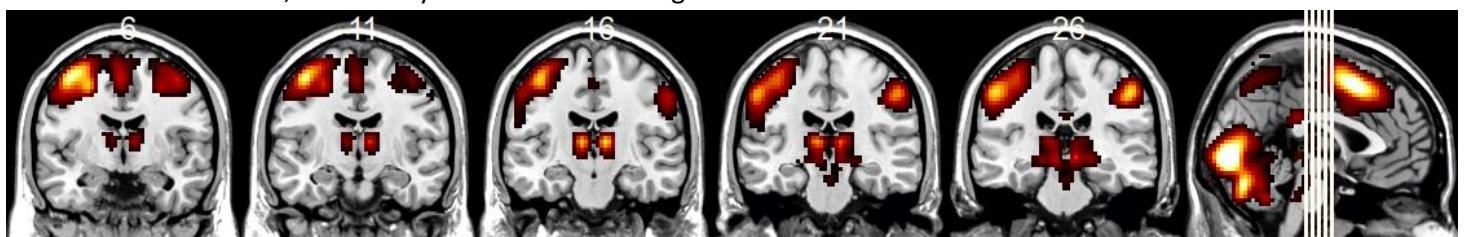
Maintaining Internal Attention

Left-lateralized, thalamus activity stronger than kite.



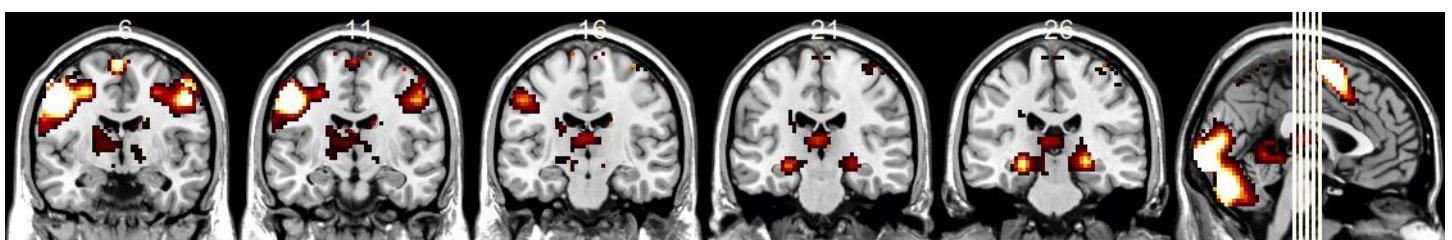
Multiple Demand Network

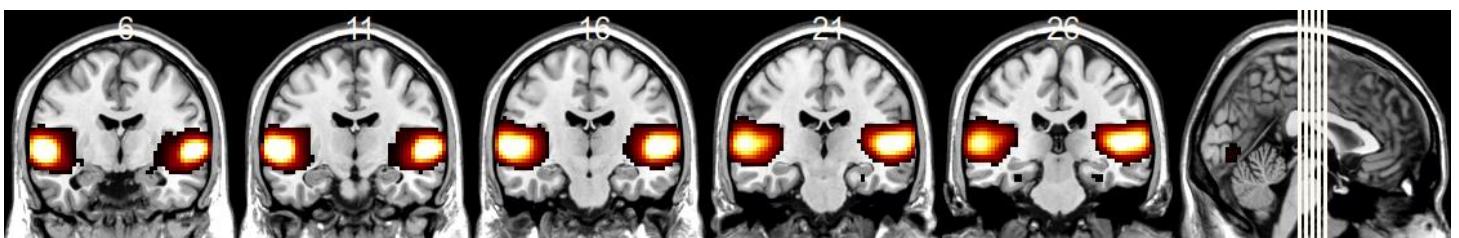
Similar slice 16, but activity in thalamus is stronger.



Initiation

No defined kite or thalamus on slice 16.



Auditory Perception

Response

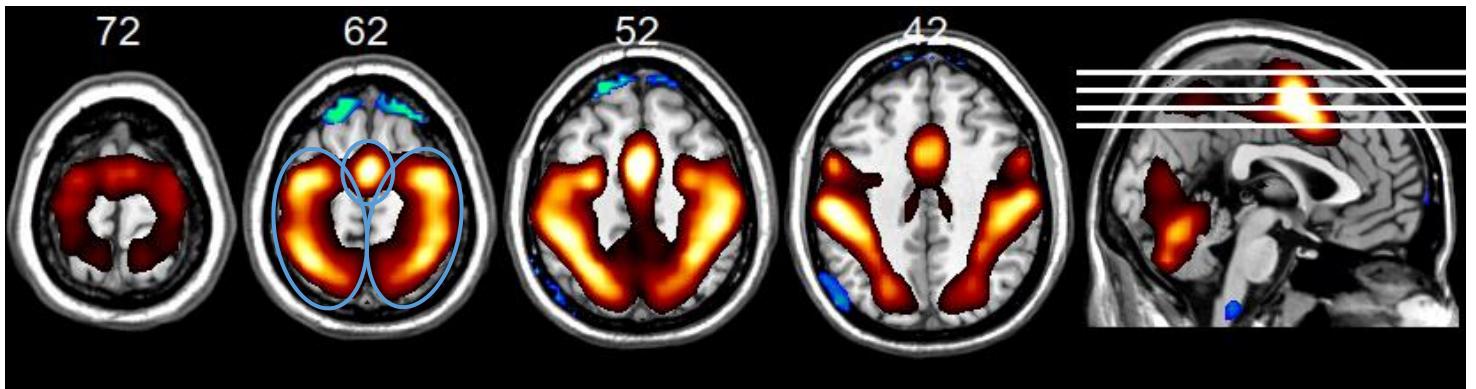
3. **Butterfly (One Sided if One-Handed Response): 144, 134, 124, 114**



Mainly on slices 62 and 52.

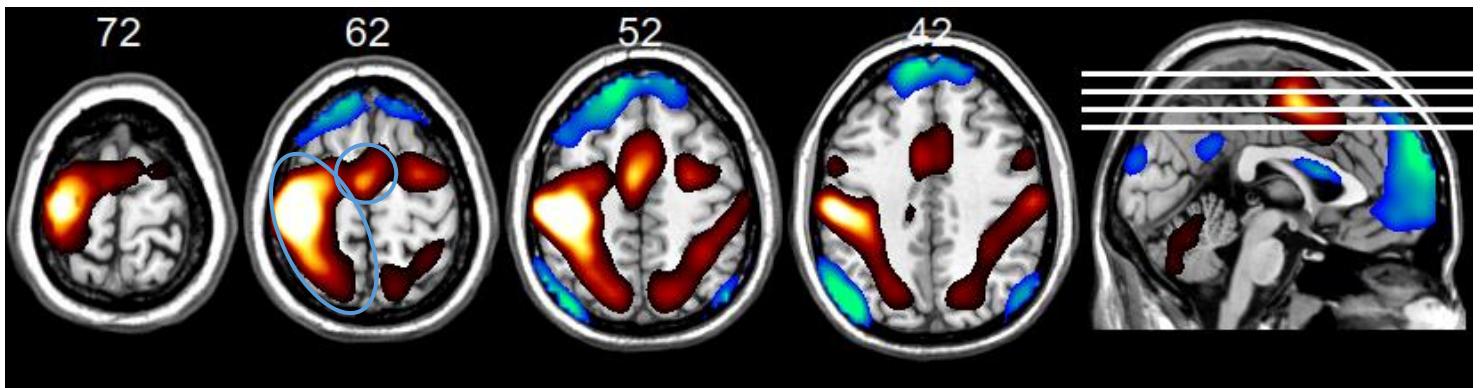
Two-Handed (2RESP)

Bilateral.



Right-Handed (1RESP)

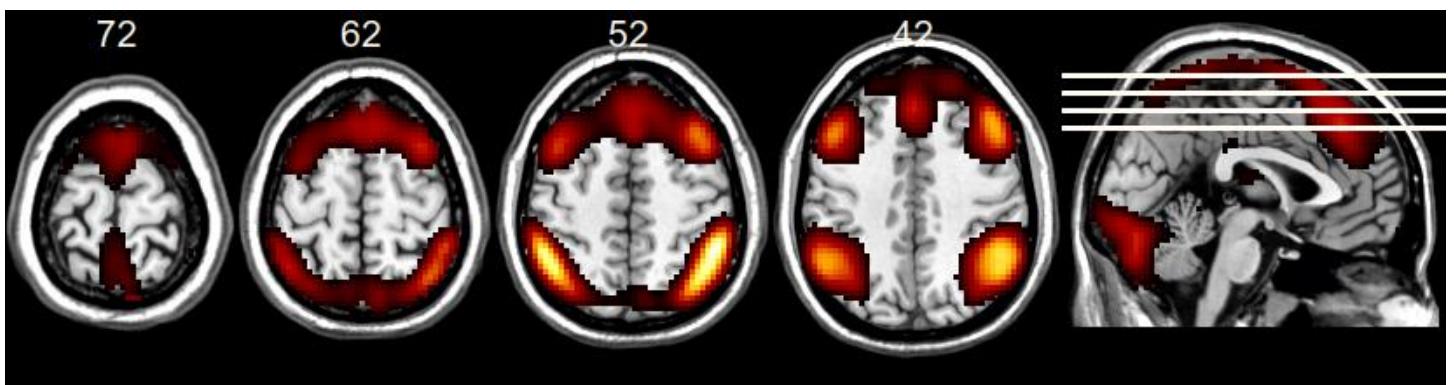
Left-dominant.



Other Networks:

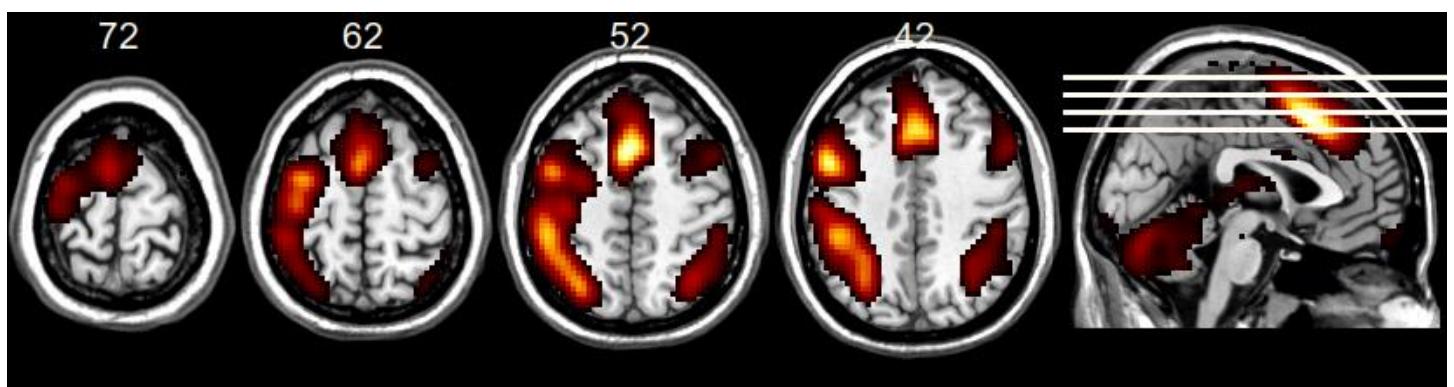
Re-Evaluation

Lateral activation.



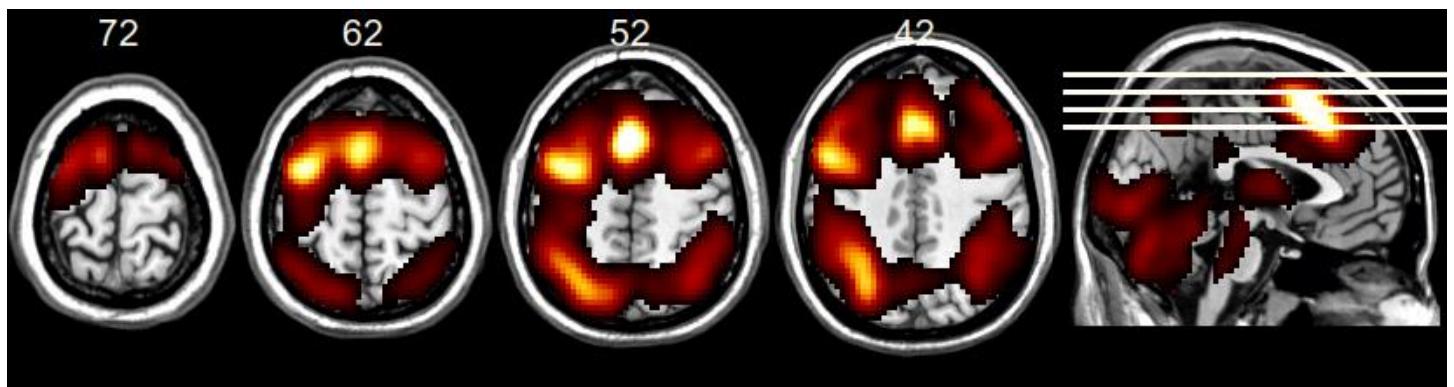
Language Network

Left dominant and activity more lateral.



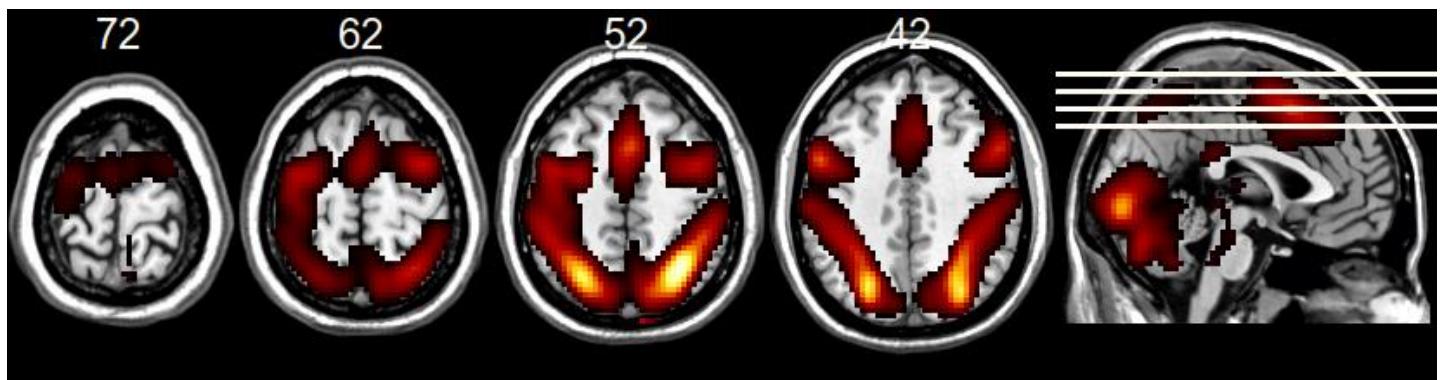
Maintaining Internal Attention

Left-dominated and wings less defined.



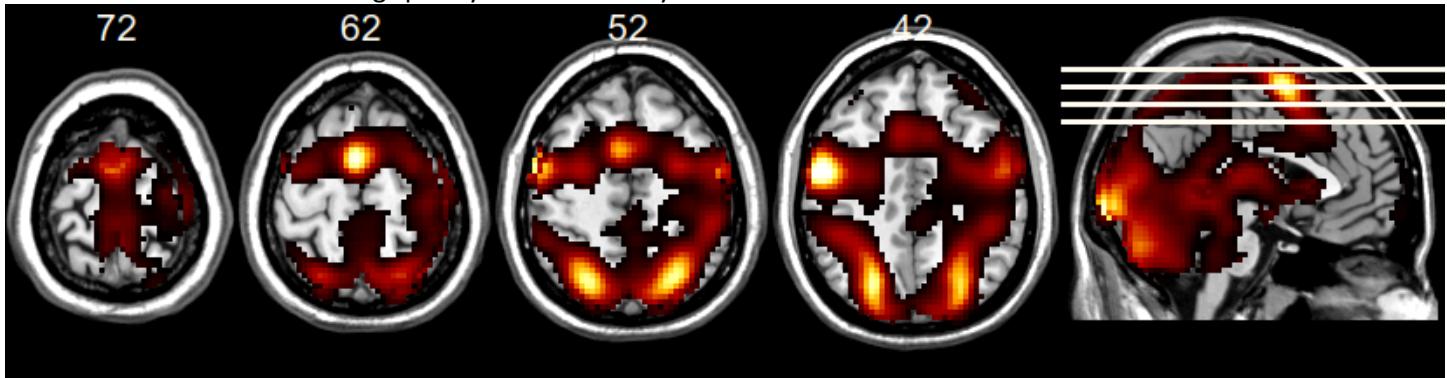
Multiple Demand Network

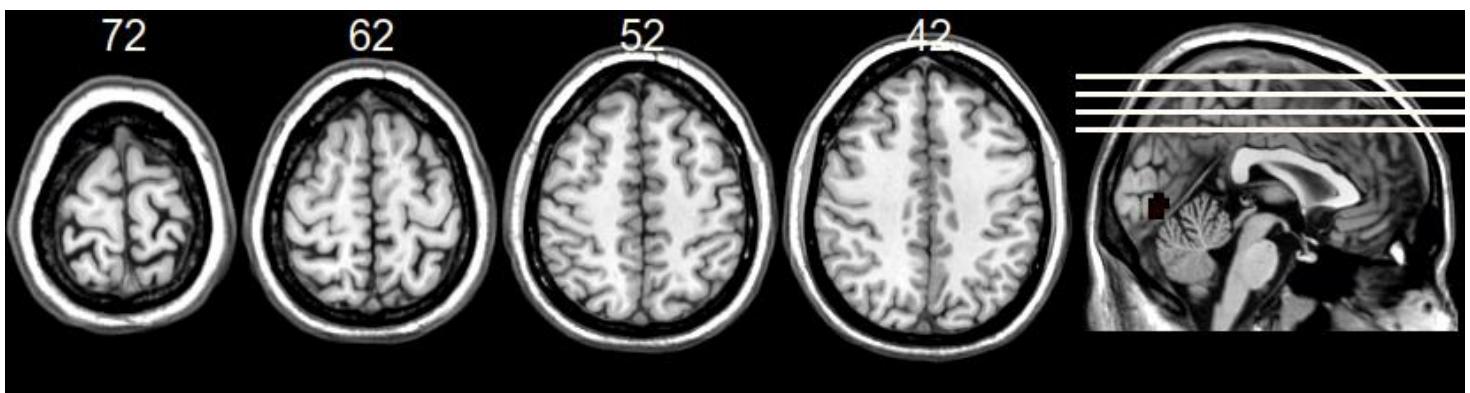
Activity more posterior.



Initiation

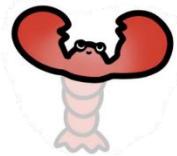
Left-dominant and wings poorly defined activity.



Auditory Perception

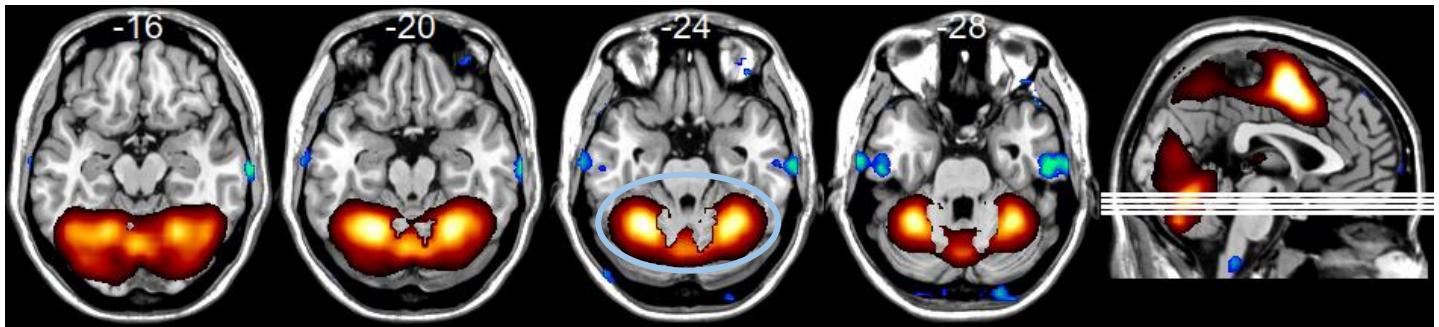
Response

4. Lobster Claw: 56, 52, 48, 44



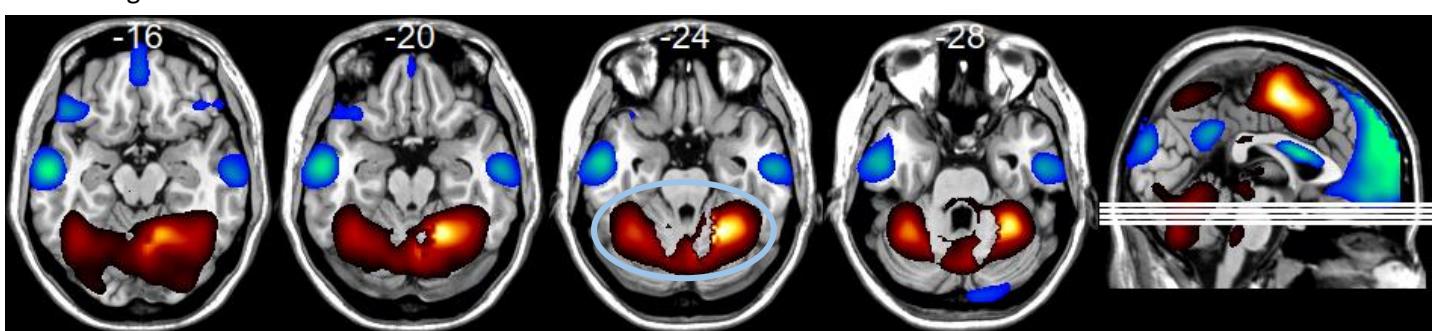
Two-Handed (2RESP)

Bilateral.



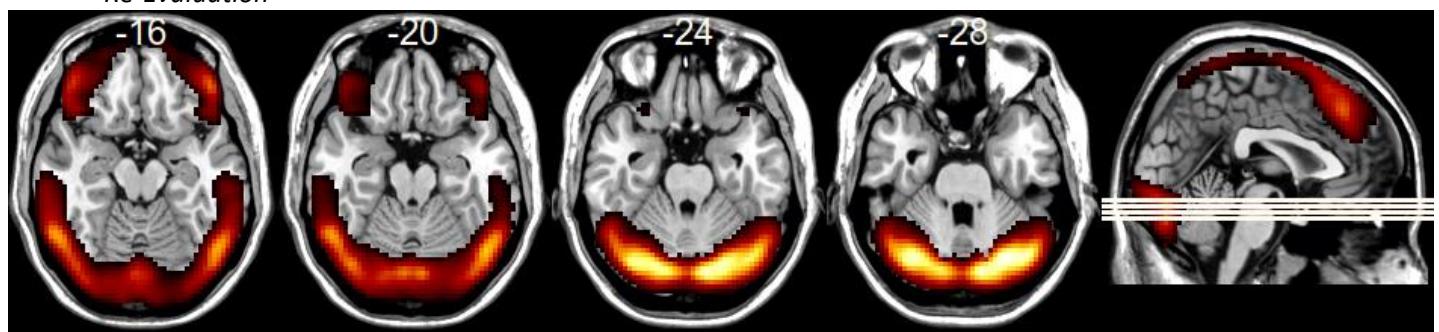
Right-Handed (1RESP)

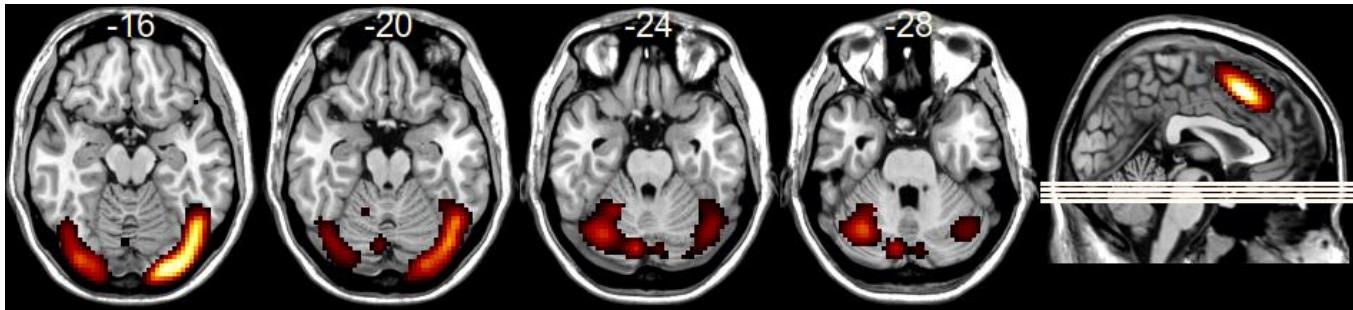
Right-dominant.

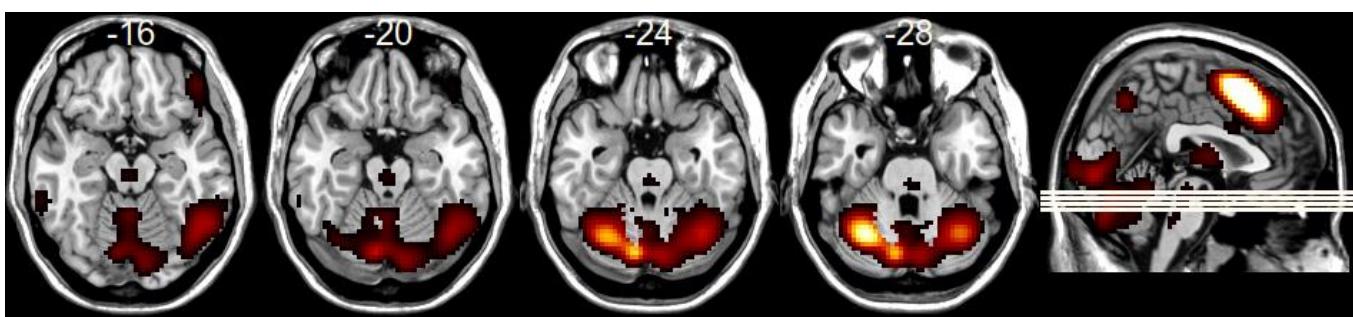


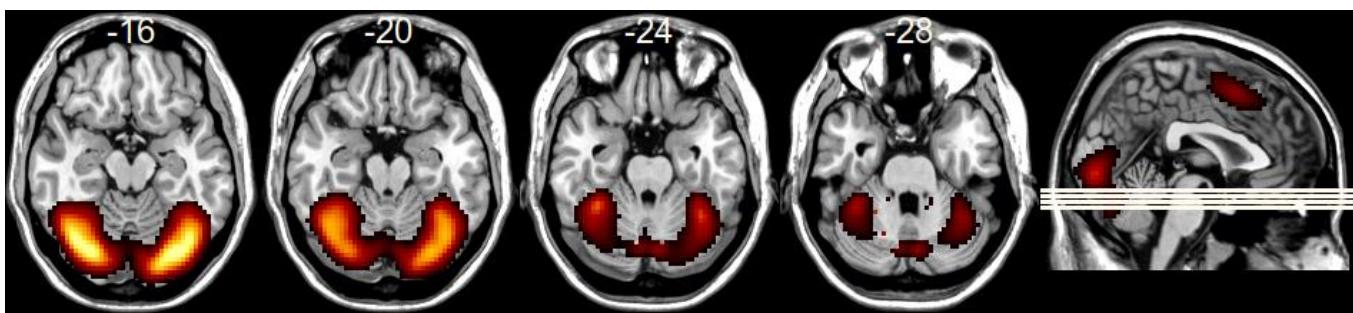
Other Networks:

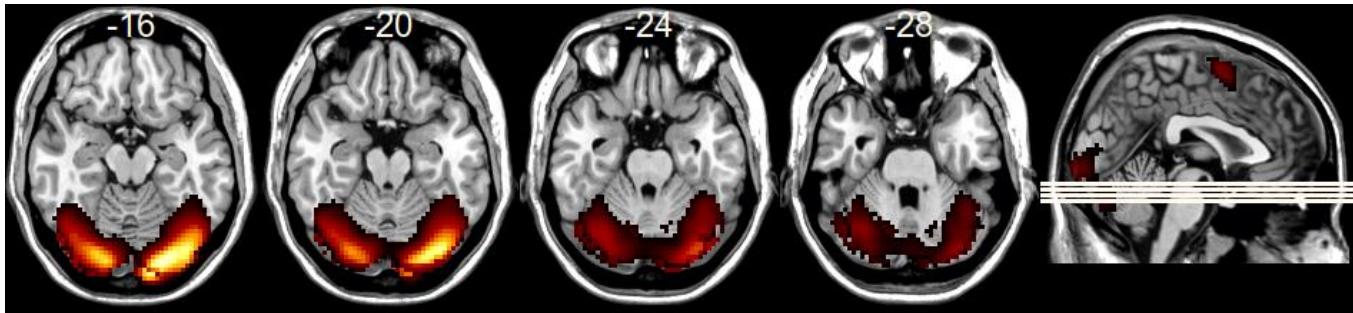
Re-Evaluation



Language Network

Maintaining Internal Attention

Multiple Demand Network

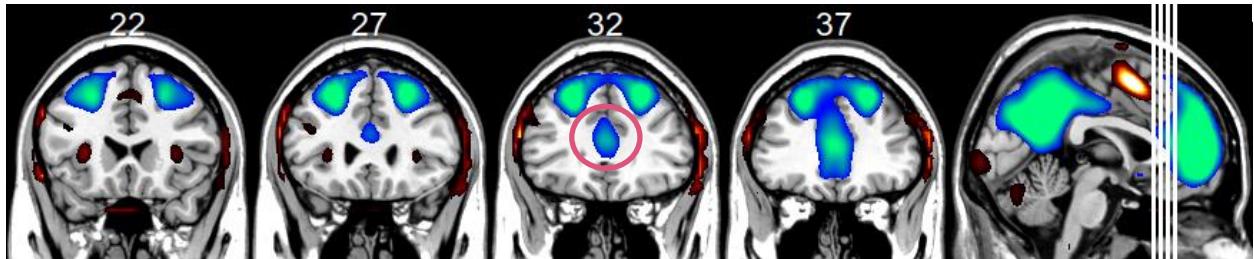
Initiation

Default Mode Networks

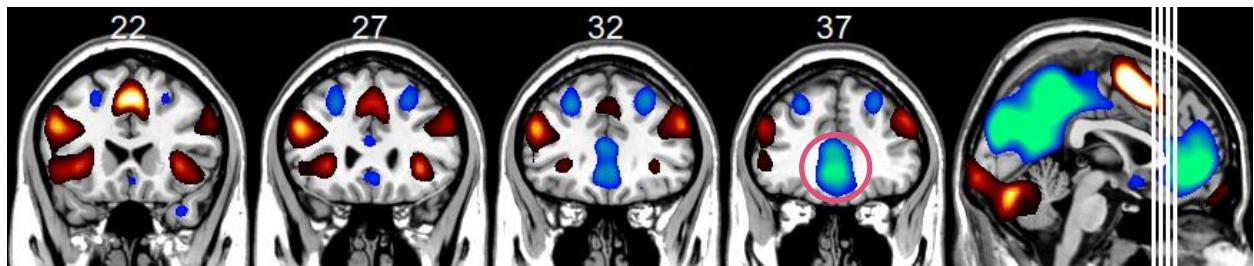
1. Snowman Nose vs. Mouth: 148,153,158,163

Traditional Nose (TDMN; DMNB)

Mainly slices 32 and 37.



Novel Mouth (NDMN; DMNA)

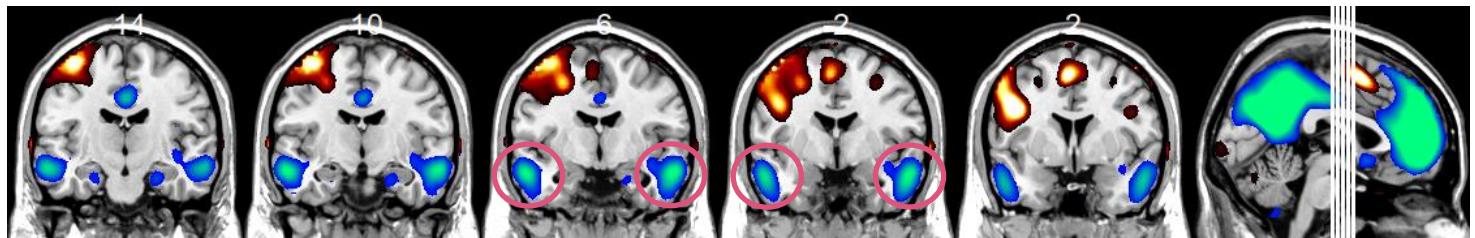


Default Mode Networks

2. Medial Temporal Dots- Prominent vs Muted: 112,116,120,124,128

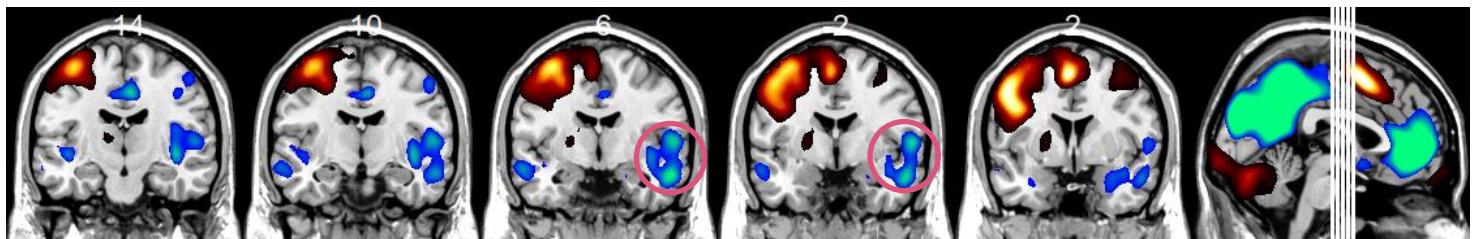
Traditional Prominent (TDMN; DMNB)

Prominent bilateral medial temporal dots.



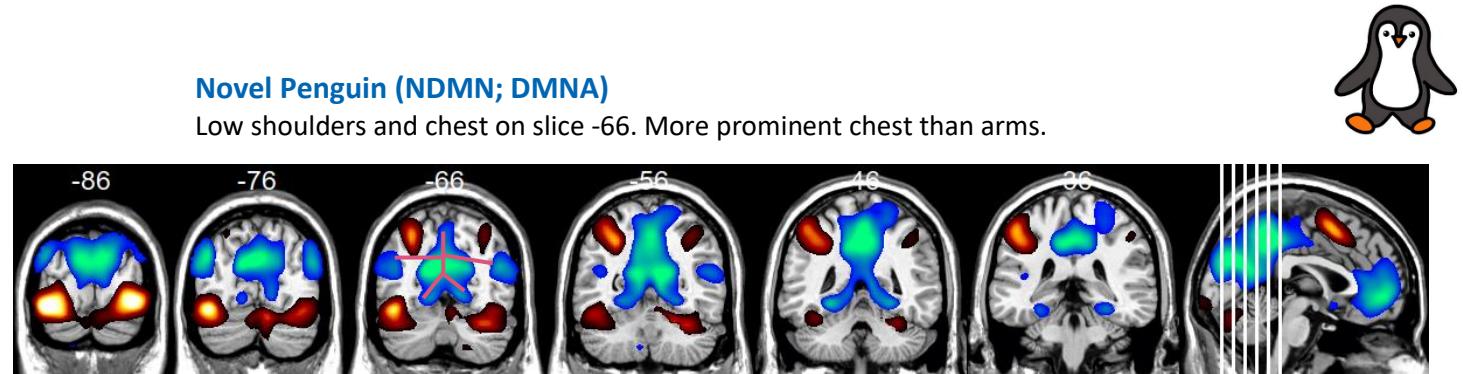
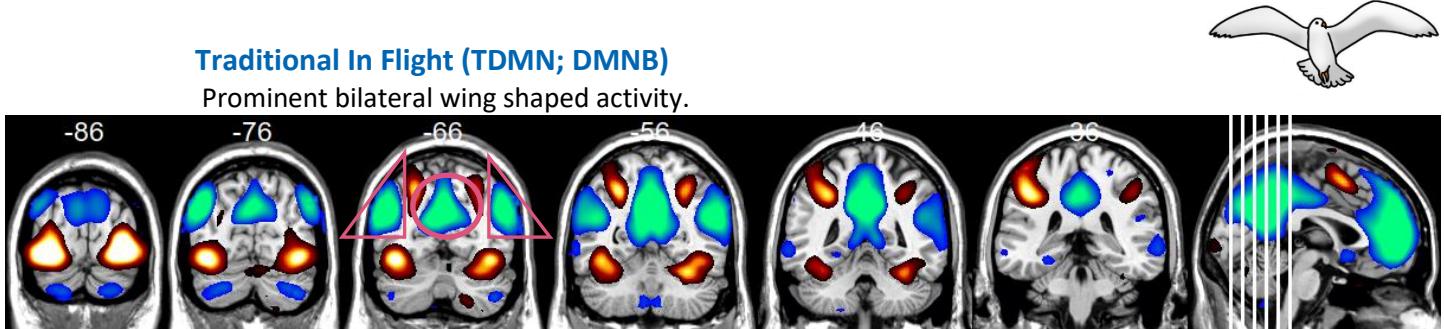
Novel Muted (NDMN; DMNA)

Muted right-dominant medial temporal dots.



Default Mode Networks

3. In Flight vs. Penguin: 40,50,60,70,80,90



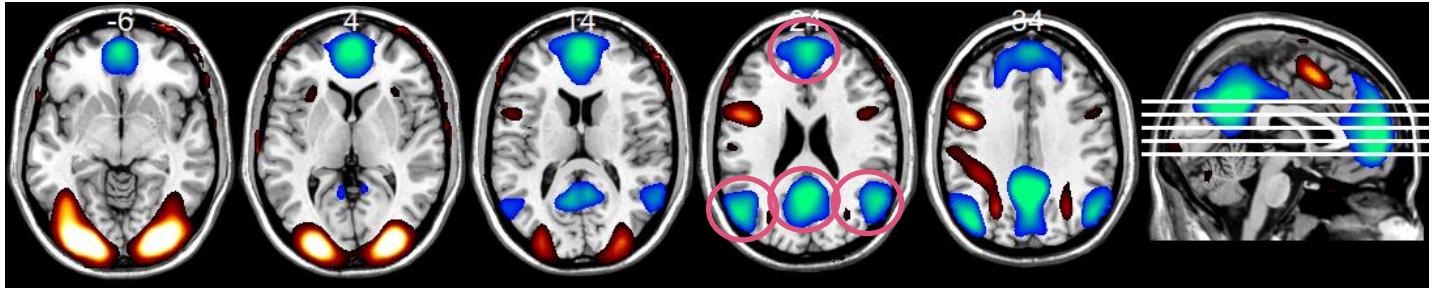
Default Mode Networks

4. Tripod vs. Kitten: 66,76,86,96,106



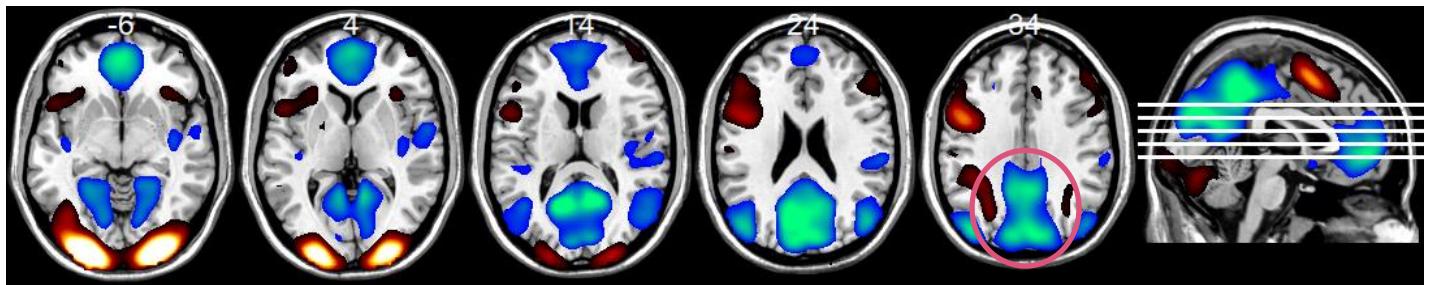
Traditional Tripod (TDMN; DMNB)

Mostly on slices 24 and 34.



Novel Kitten (NDMN; DMNA)

The kitten is sitting facing into the screen.



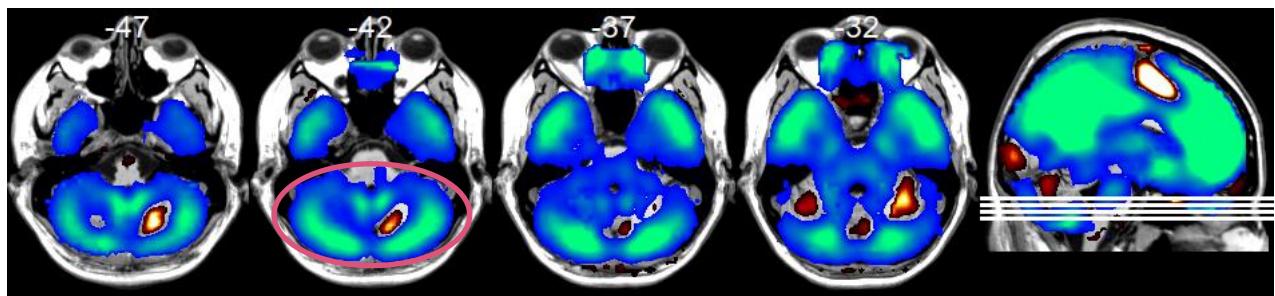
Default Mode Networks

5. Mandibles vs. Laughing Clown: 25,30,35,40

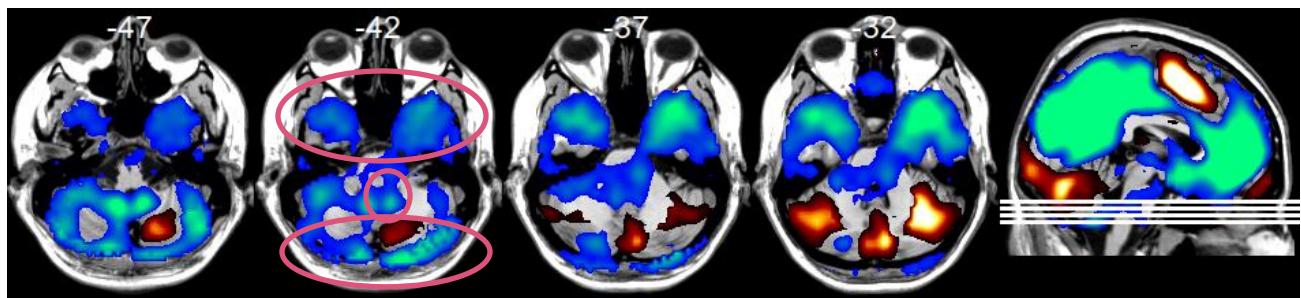


Traditional Mandibles (TDMN; DMNB)

Take threshold right down to -.1 and -.01.



Novel Laughing Clown (NDMN; DMNA)

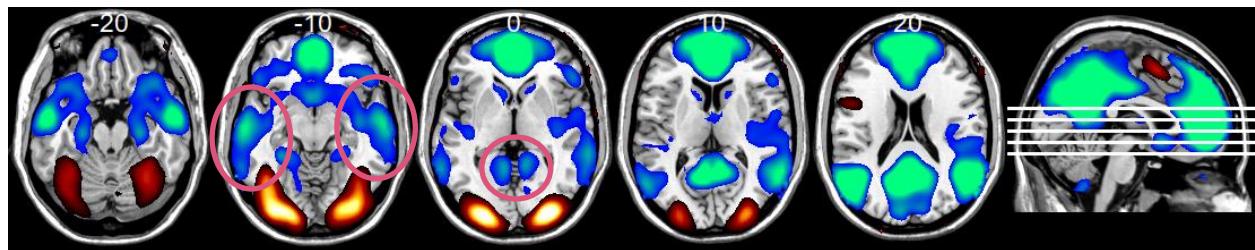


Default Mode Networks

6. Angel Wings vs You're In Trouble: 52,62,72,82,92

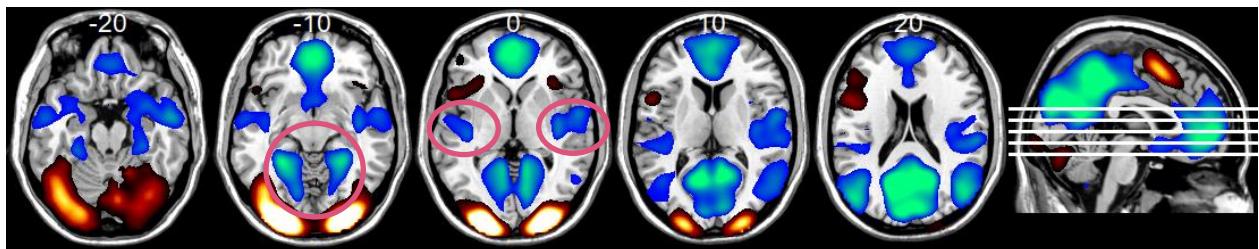
Traditional Angel Wings (TDMN; DMNB)

Feet less prominent in slices -10 and 0. Wingtips more posterior and lateral, particular in slice 0.



Novel You're In Trouble (NDMN; DMNA)

Prominent feet in slices -10 and 0. Basal ganglia arms. Forearms and elbows more anterior and medial, particularly in slice 0.



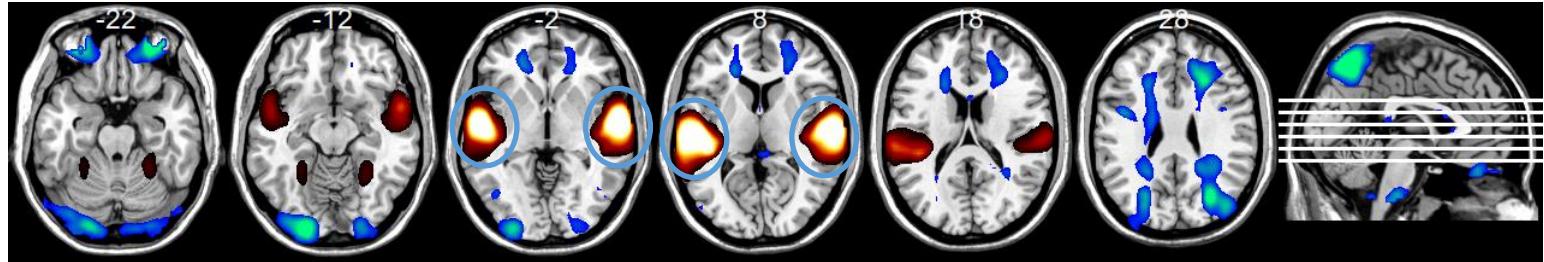
Auditory Perception (AUD)

Previous Name: Primary Auditory (AUD)



1. Headphones: 50,60,70,80,90,100

Prominent bilateral temporal lobe activity in slices -2 and 8.

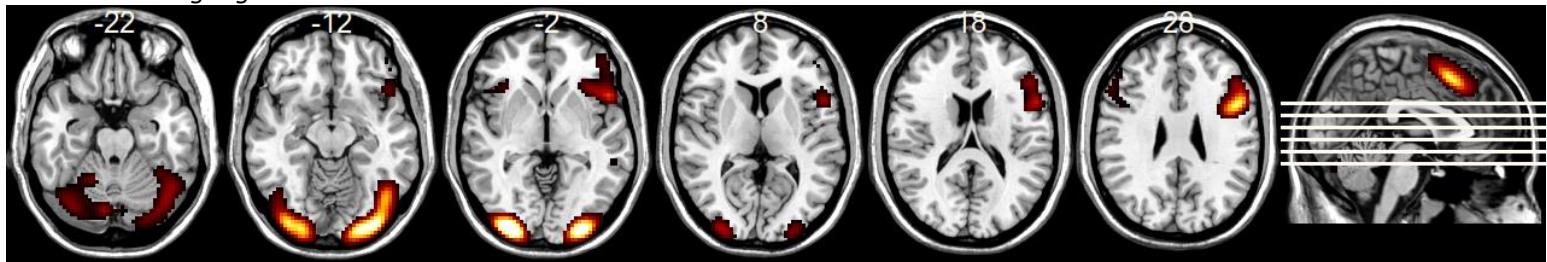


Other Networks:

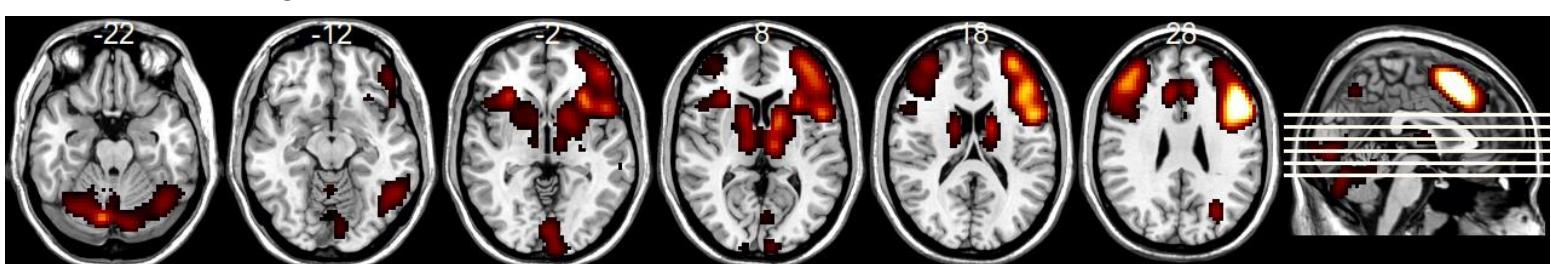
Re-Evaluation

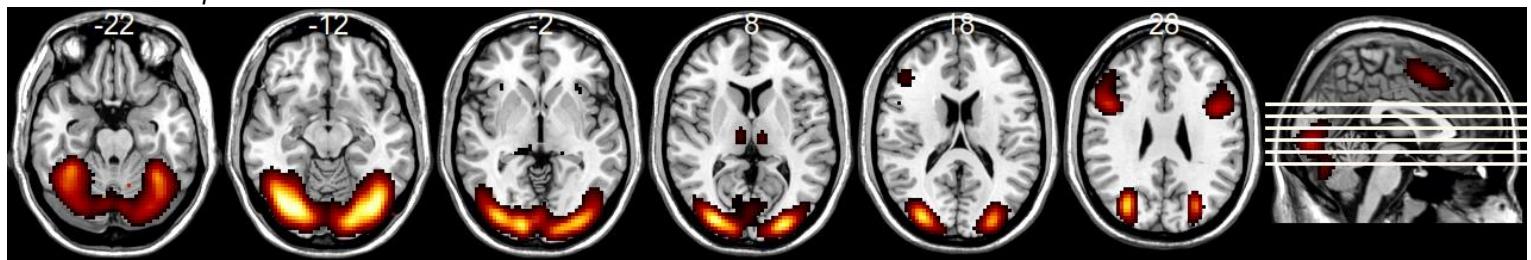


Language Network



Maintaining Internal Attention



Multiple Demand Network

Initiation

Two-Handed Response

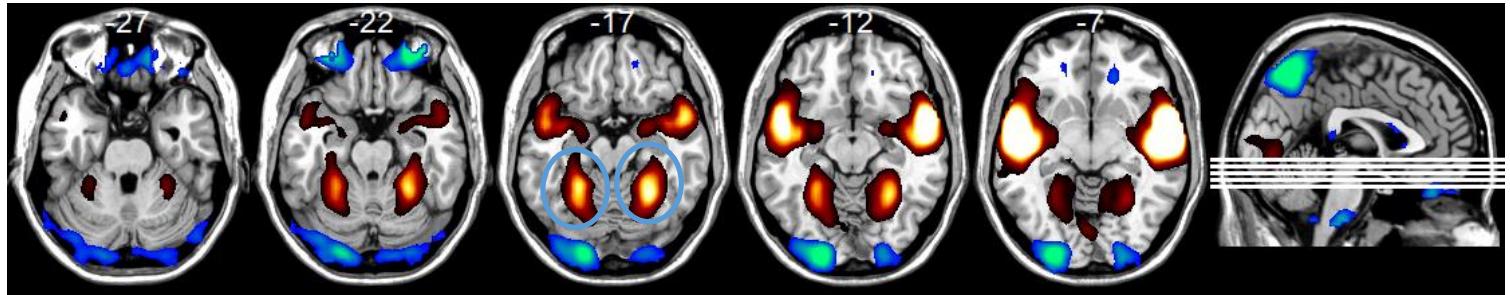
Auditory Perception (AUD)

Previous Name: Primary Auditory (AUD)



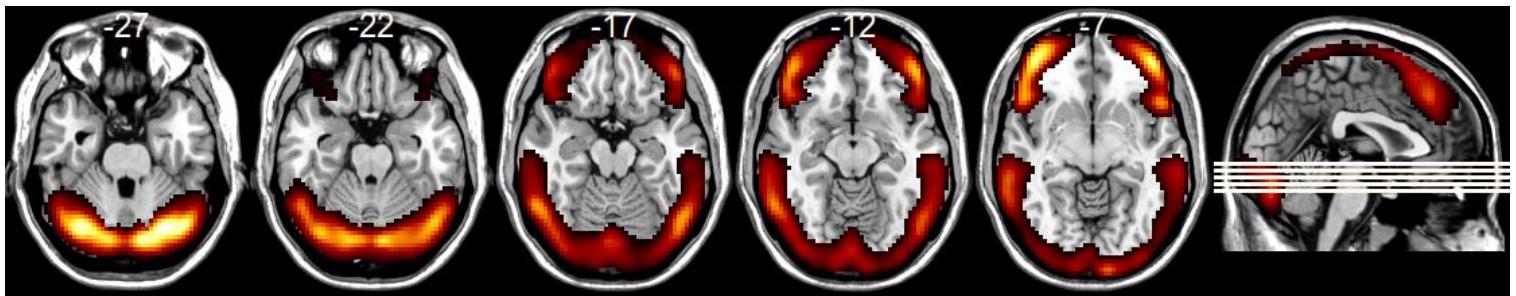
2. Angry Dragon: 45, 50, 55, 60, 65

Bilateral occipitotemporal area activation in slice -17.

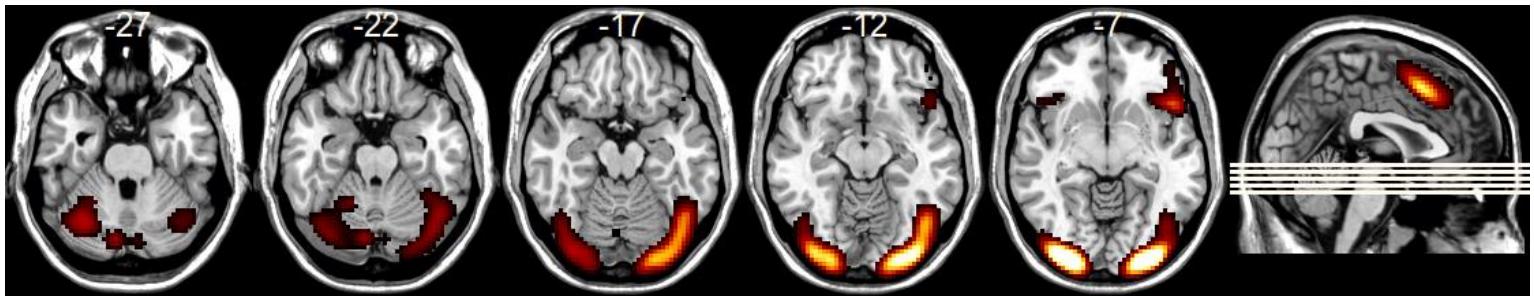


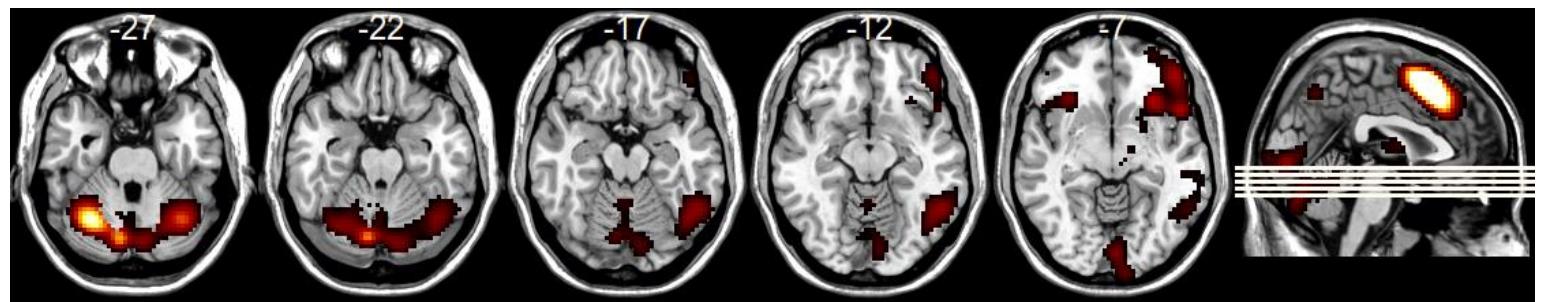
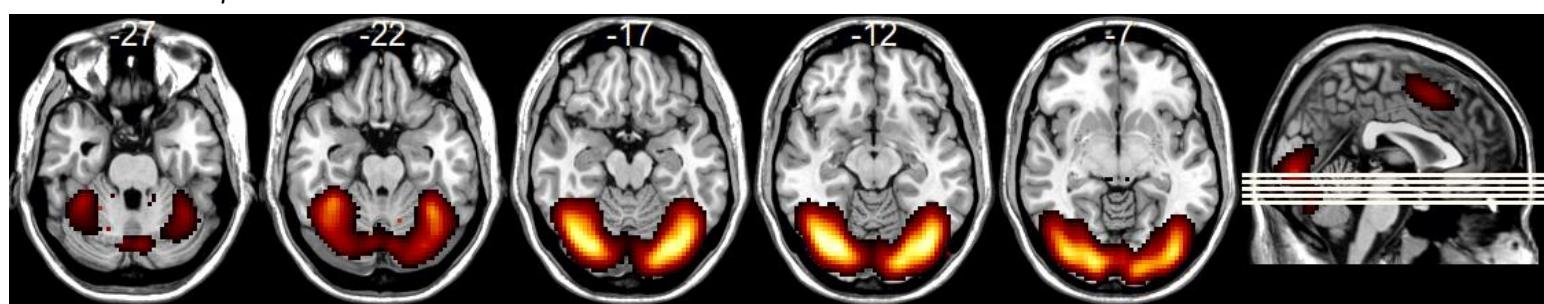
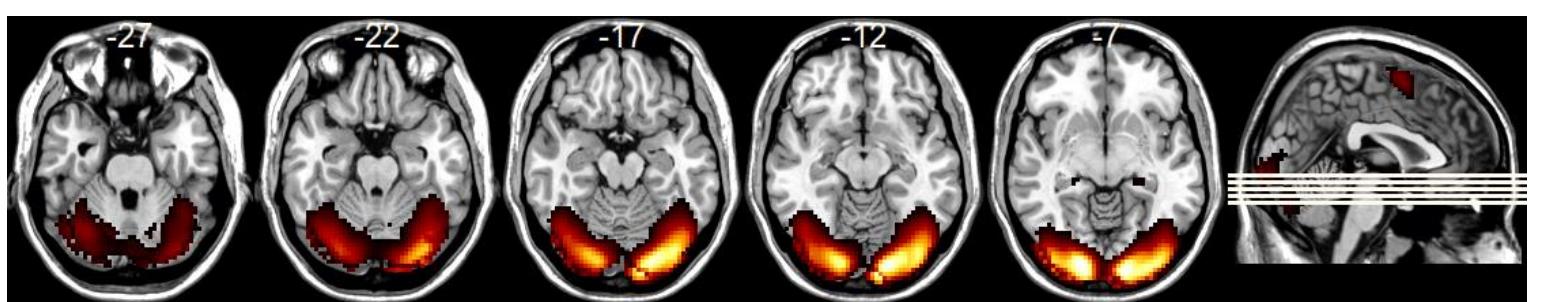
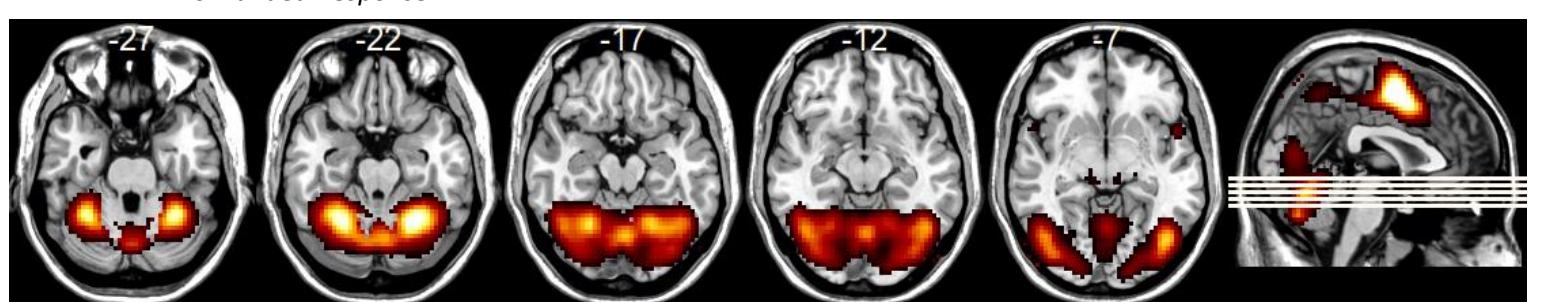
Other Networks:

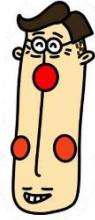
Re-Evaluation



Language Network



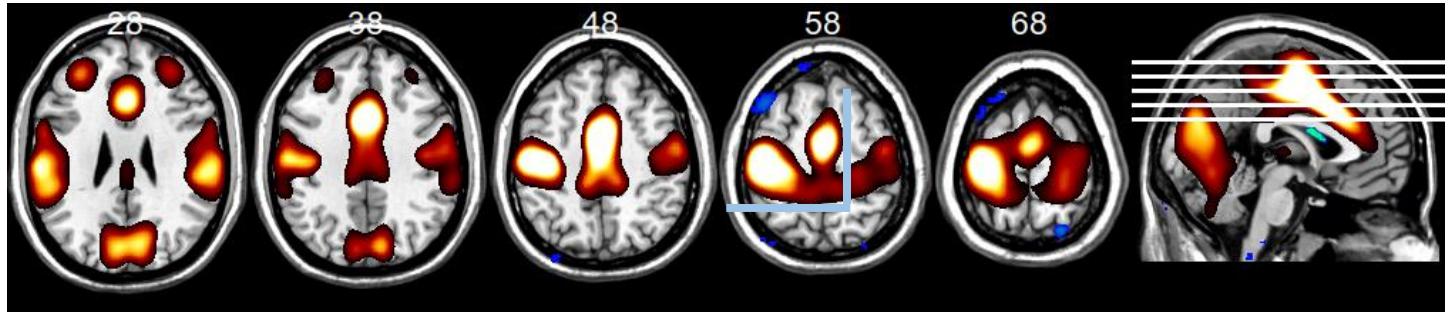
Maintaining Internal Attention*Multiple Demand Network**Initiation**Two-Handed Response*



Auditory Attention for Response (AAR)

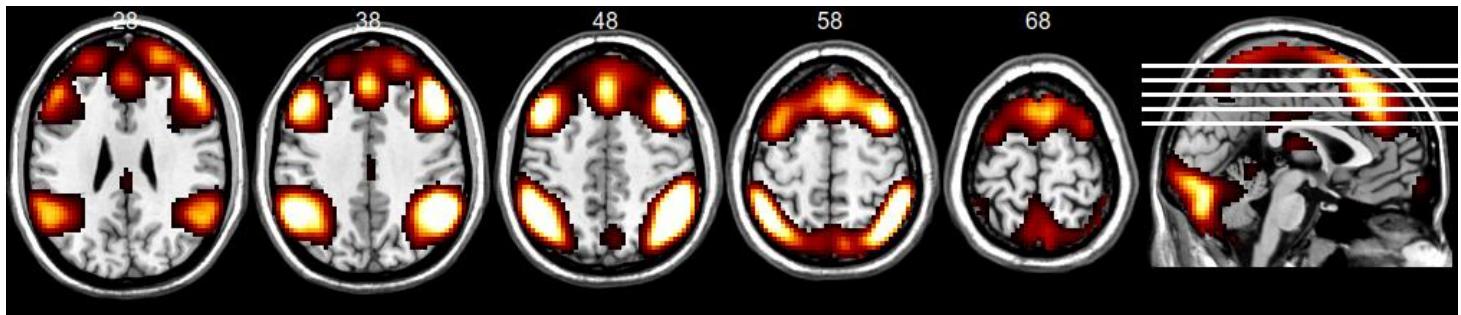
1. Happy 28th Birthday Long Face/Right Angle: 100, 110, 120, 130, 140

Slice 28 has long face with cheeks. Right angle on slice 58.

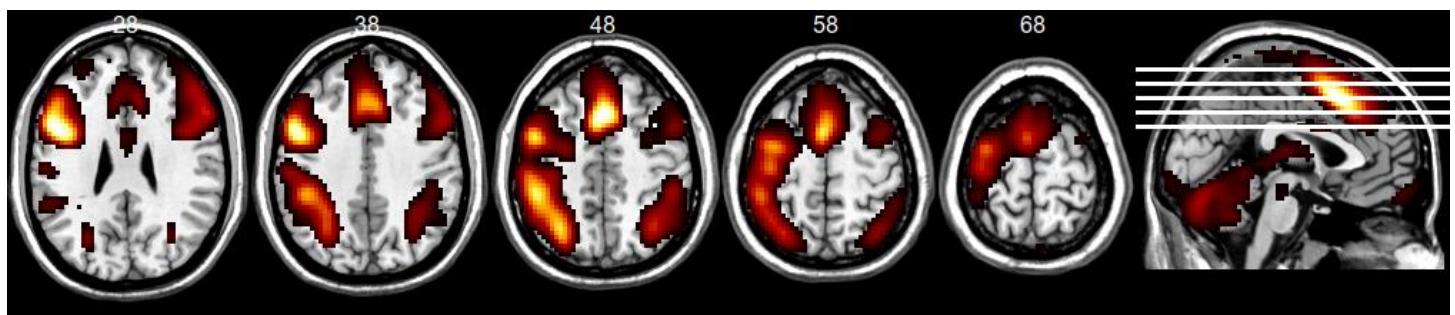


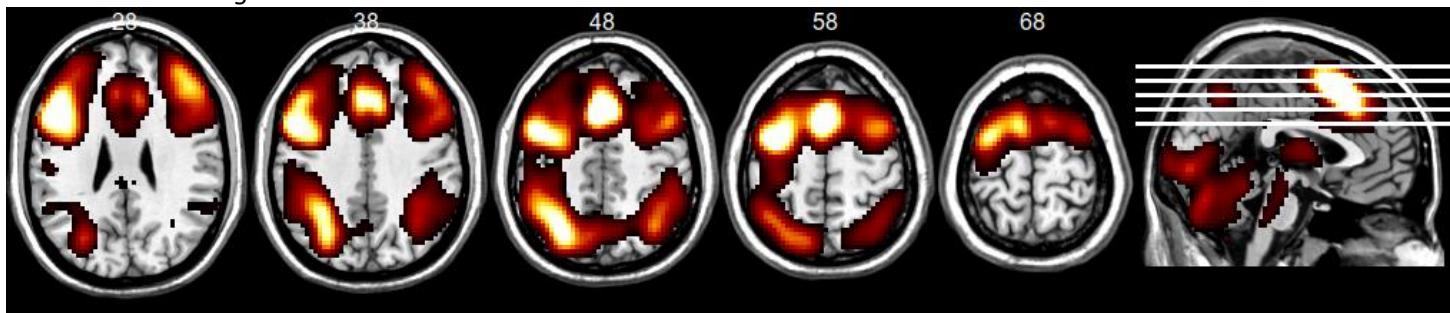
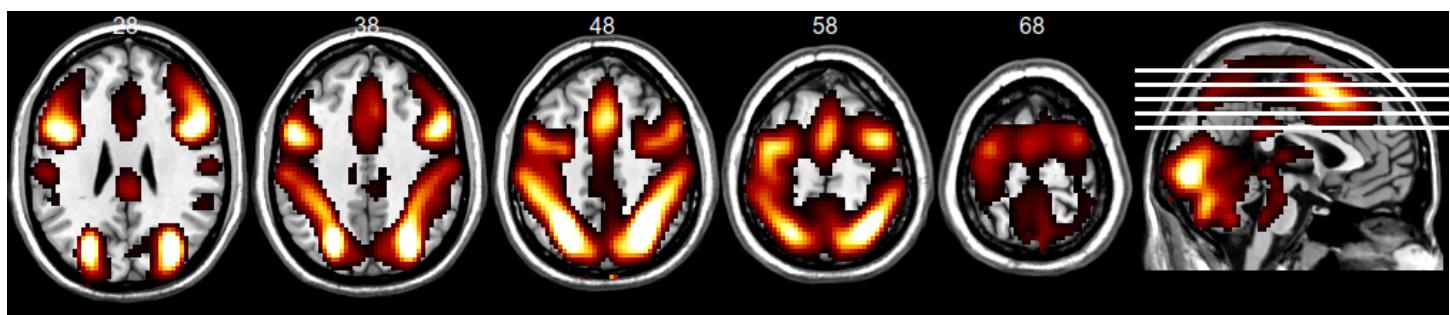
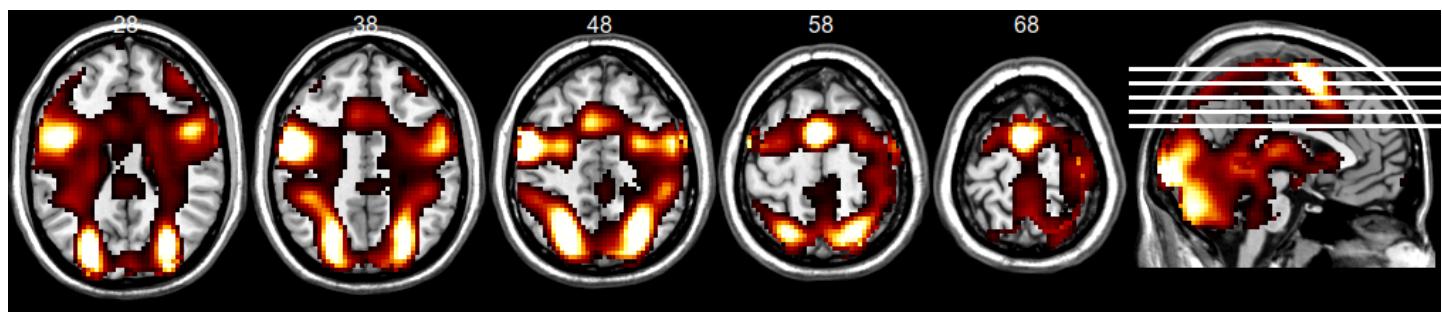
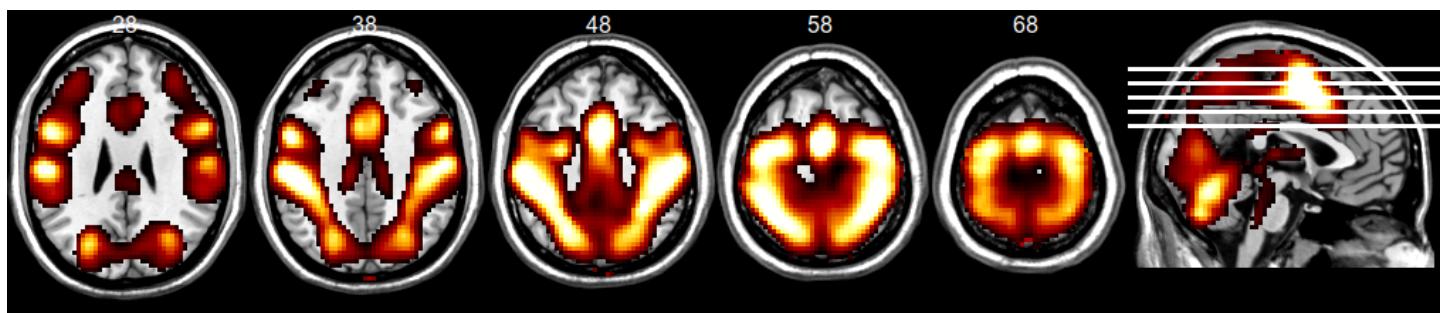
Other Networks:

Re-Evaluation



Language Network



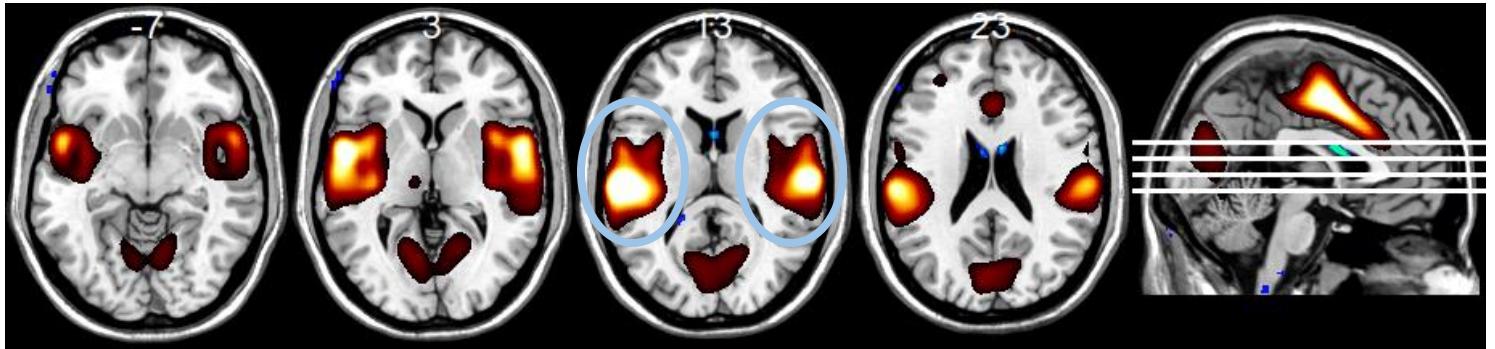
Maintaining Internal Attention*Multiple Demand Network**Initiation**Two-Handed Response*

Auditory Attention for Response (AAR)



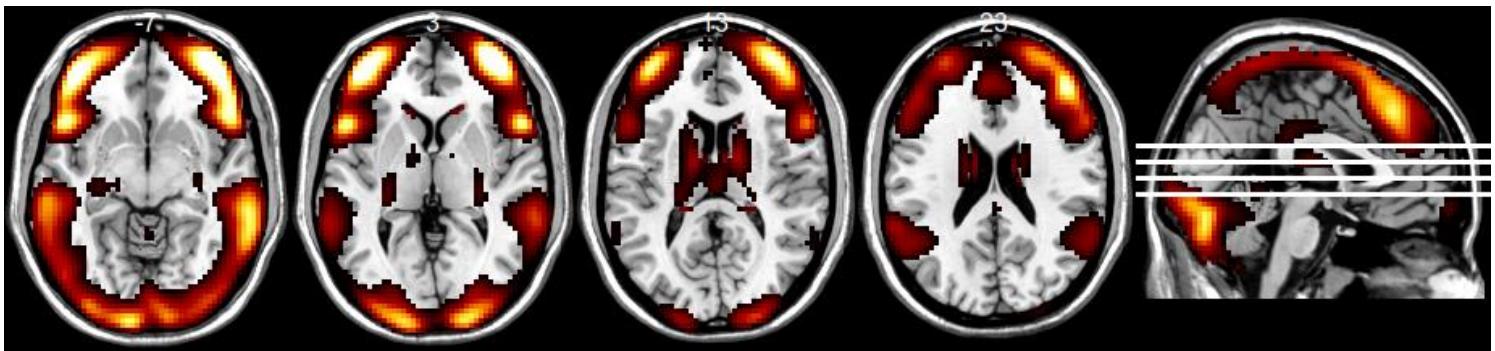
2. On Fire: 65, 75, 85, 95

Flame shapes on slice 13 bilaterally in the temporal lobes.

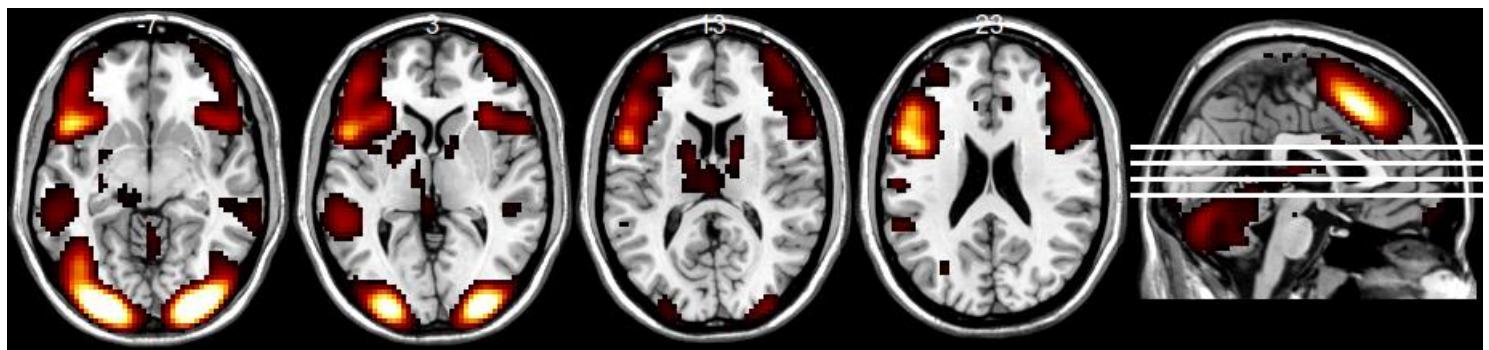


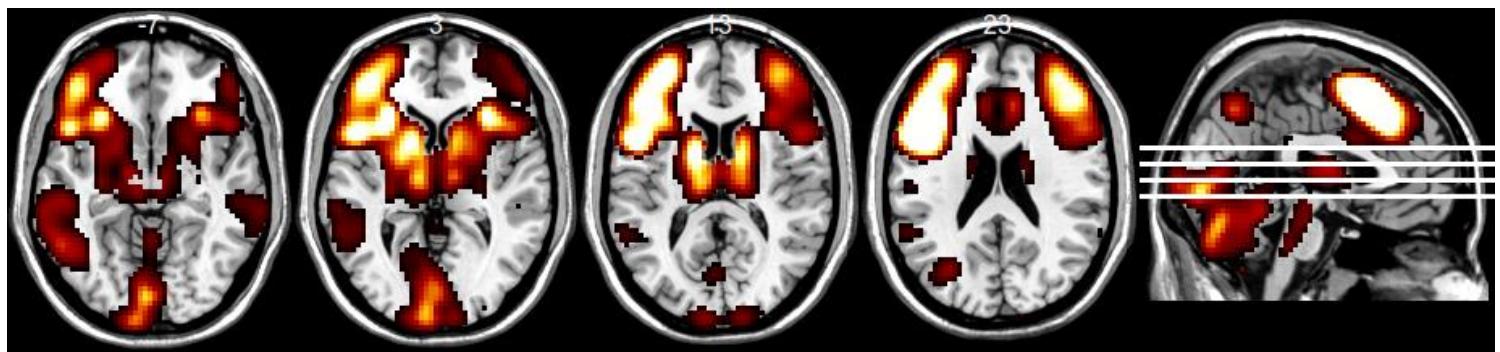
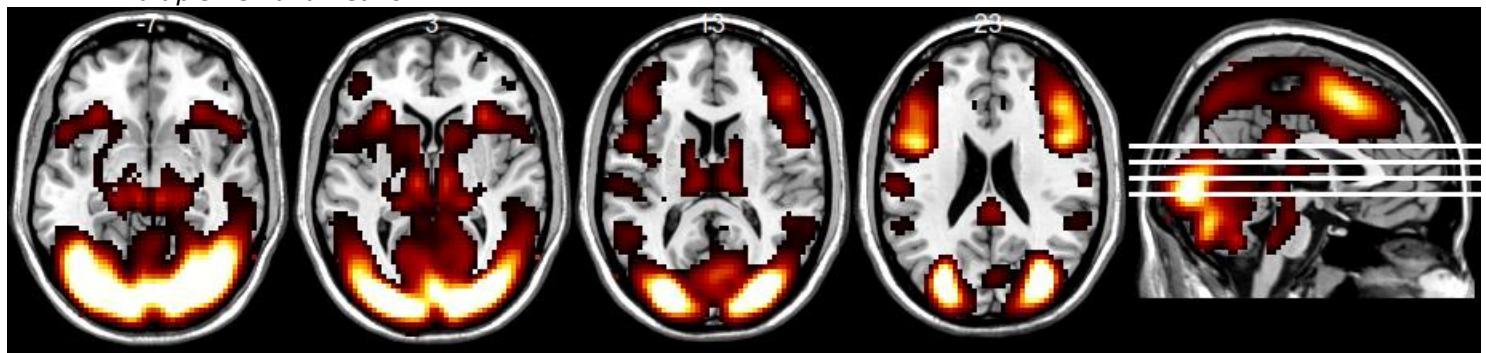
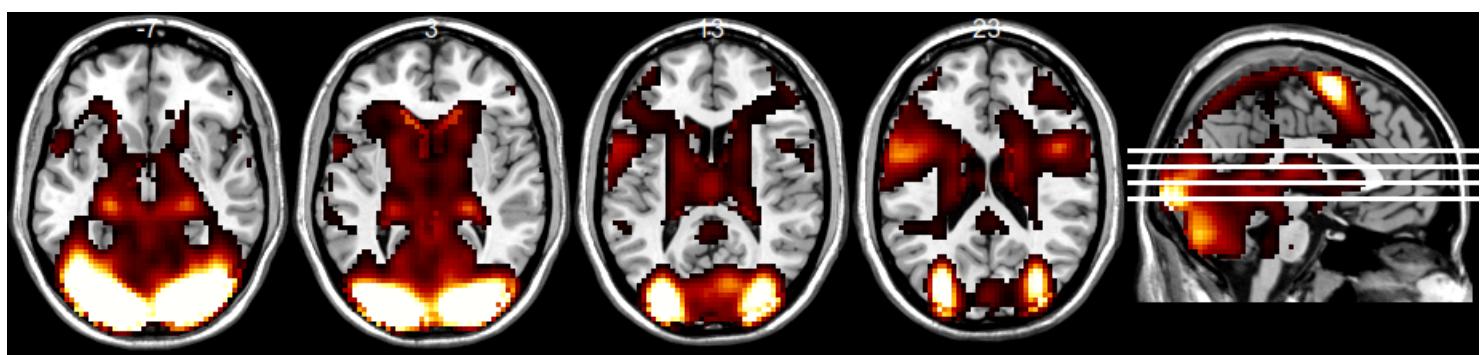
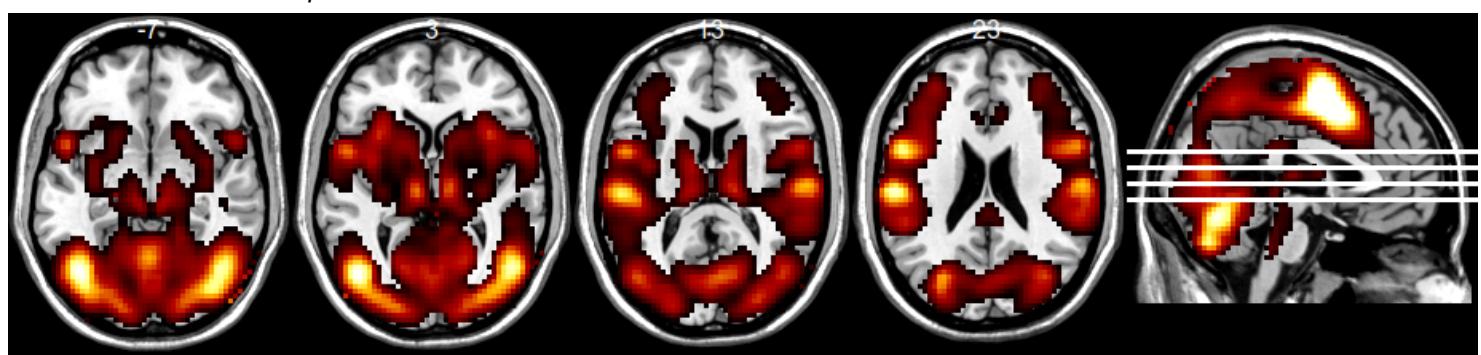
Other Networks:

Re-Evaluation



Language Network



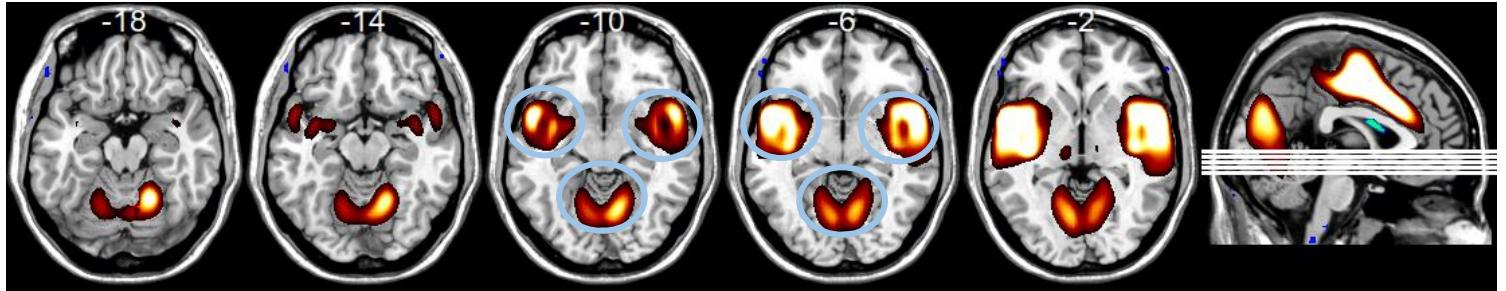
Maintaining Internal Attention*Multiple Demand Network**Initiation**Two-Handed Response*

Auditory Attention for Response (AAR)



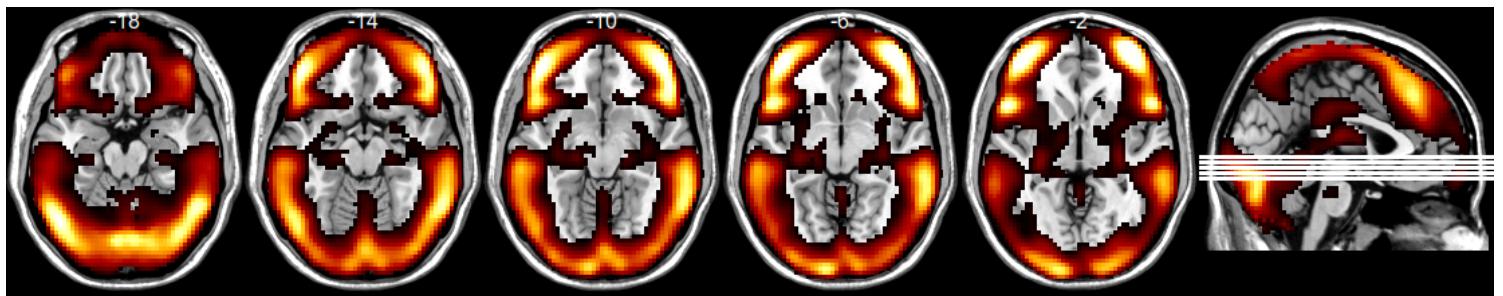
3. Small Smile: 54, 58, 62, 66, 70

Small eyes and smile dominant on slices -10, -6.

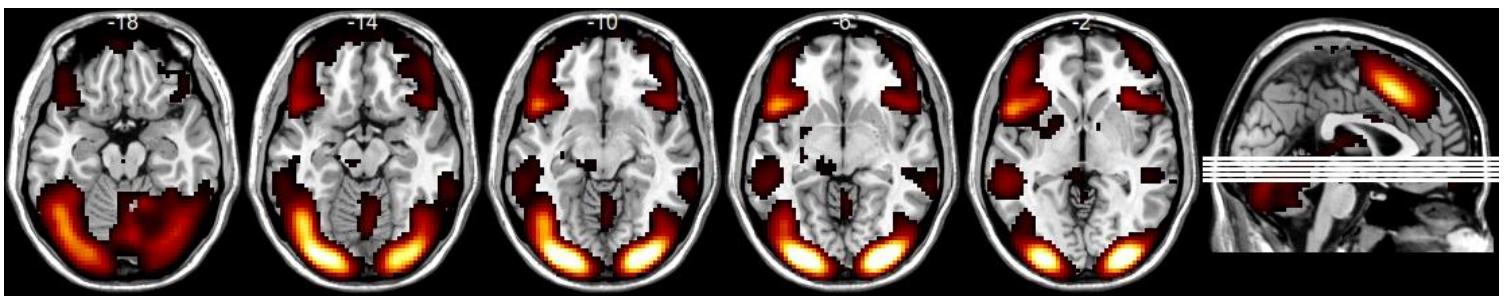


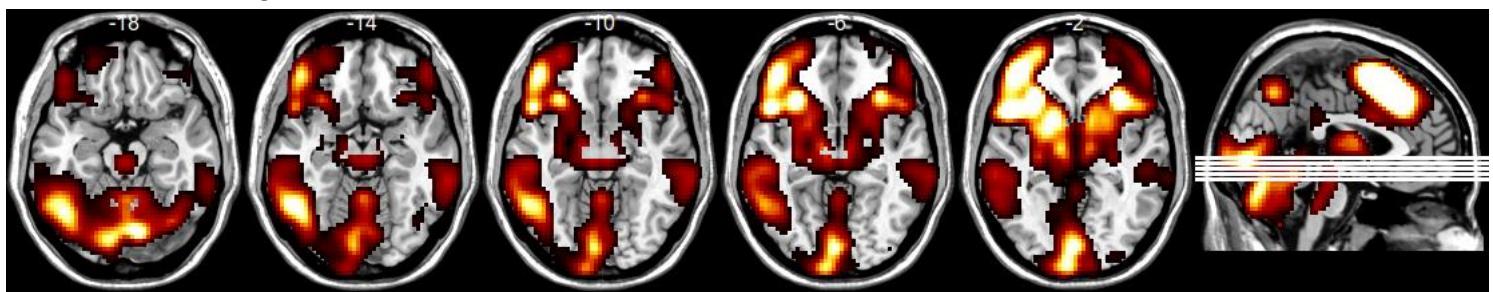
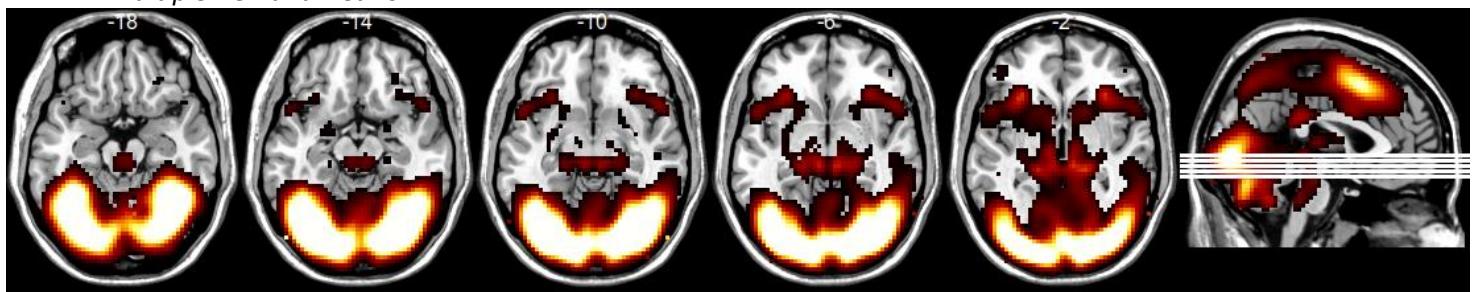
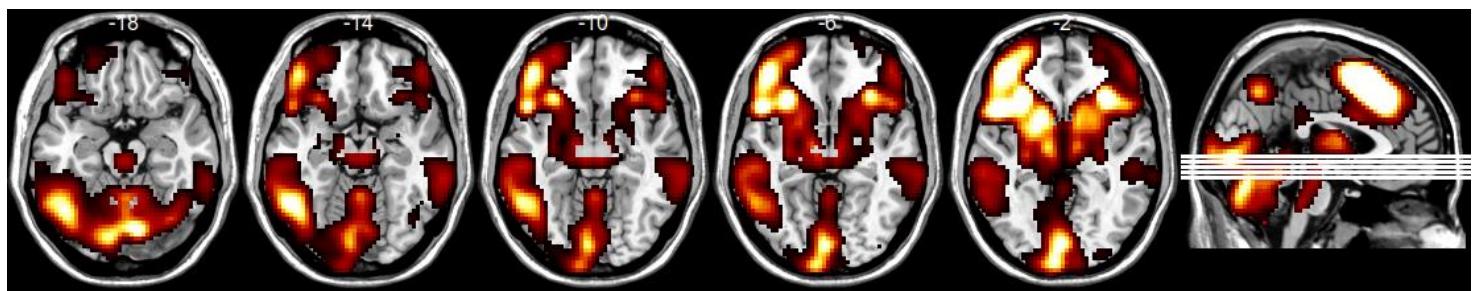
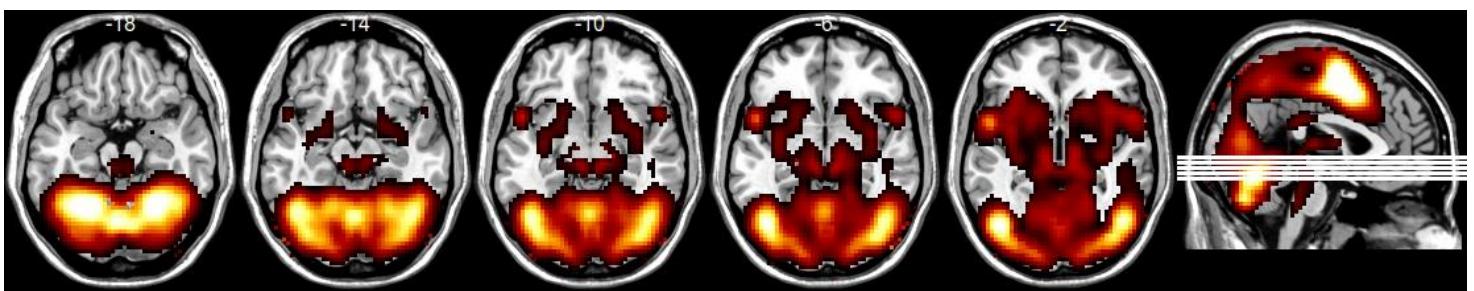
Other Networks:

Re-Evaluation



Language Network



Maintaining Internal Attention*Multiple Demand Network**Initiation**Two-Handed Response*

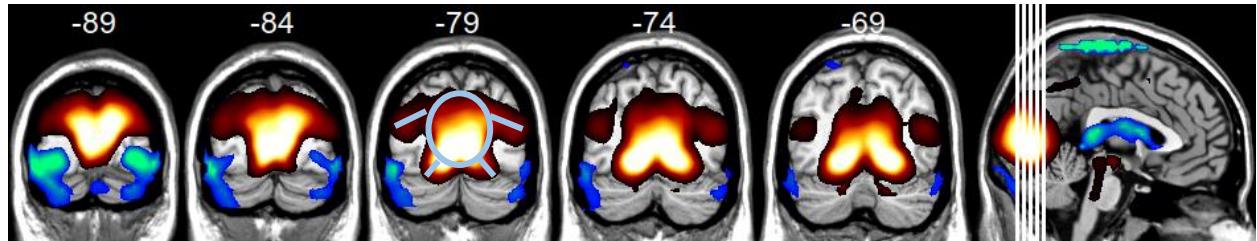


Focus on Visual Features (FoVF)

Previous Name: Focus on Visual Features (FVF)

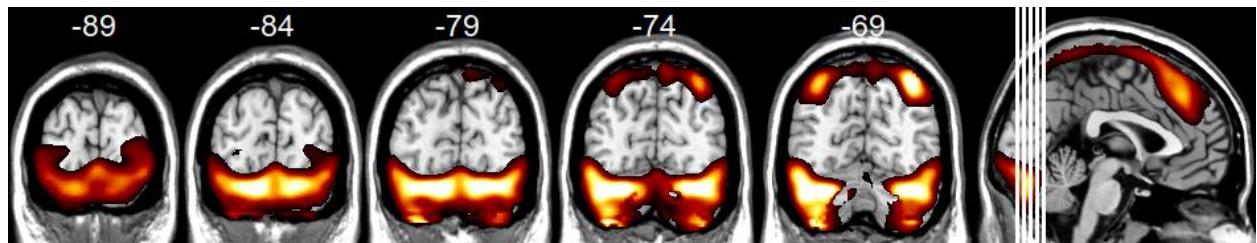
1. Stay Puft: 37, 42, 47, 52, 57

Body of the Marshmallow Man on slice -79.

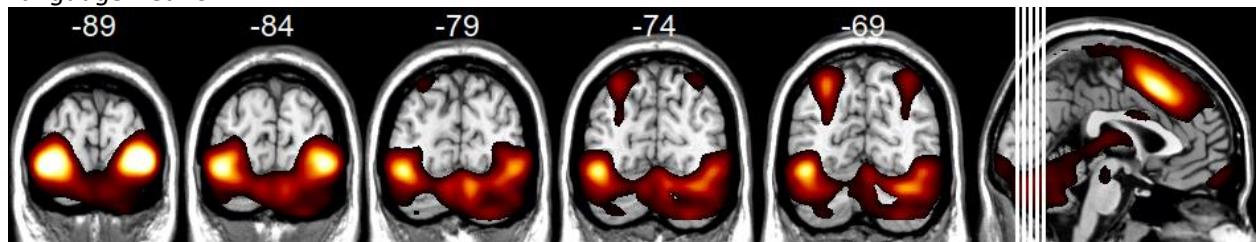


Other Networks:

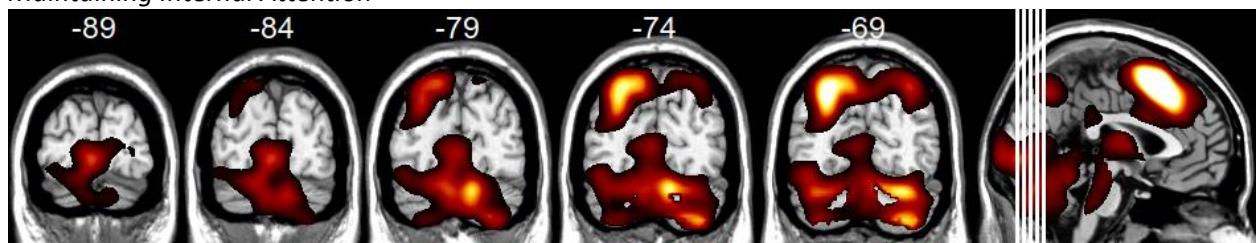
Re-Evaluation

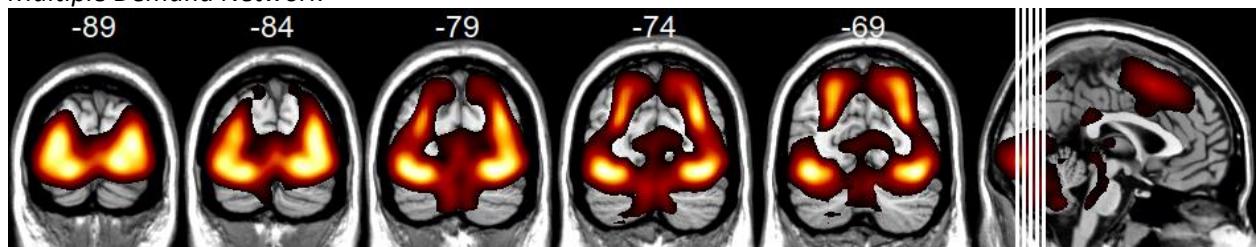
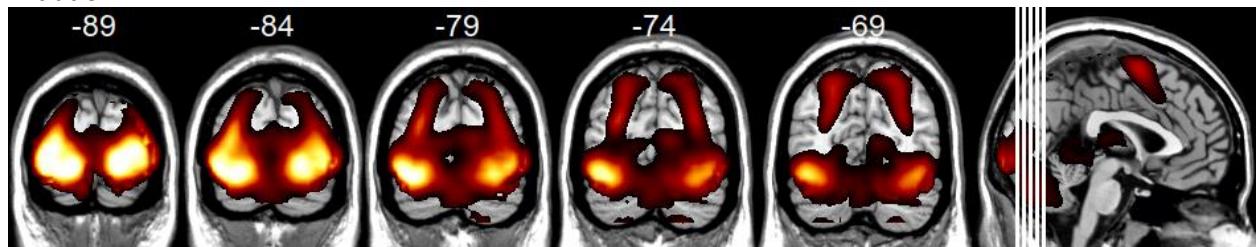
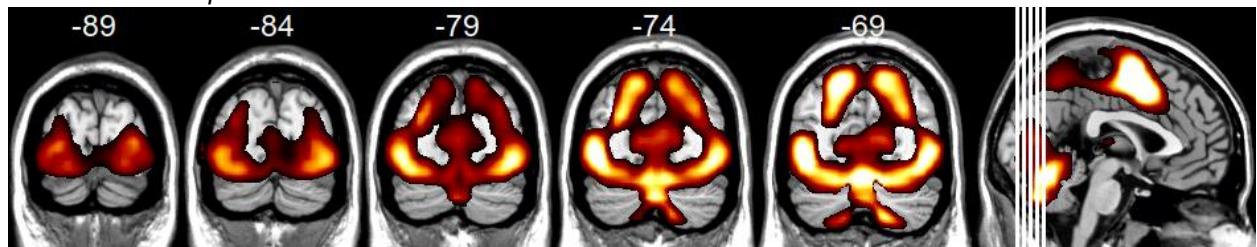
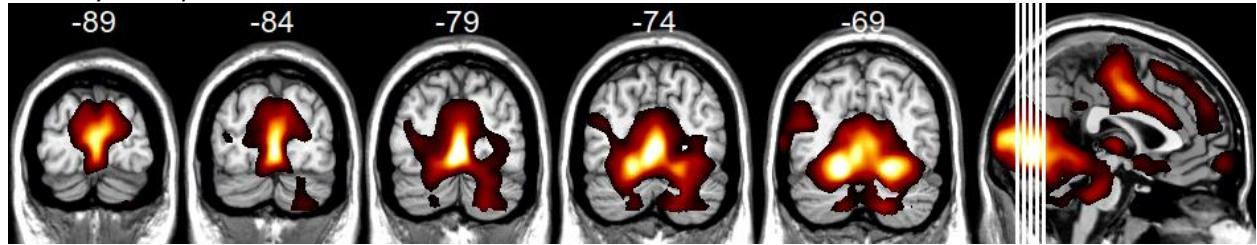
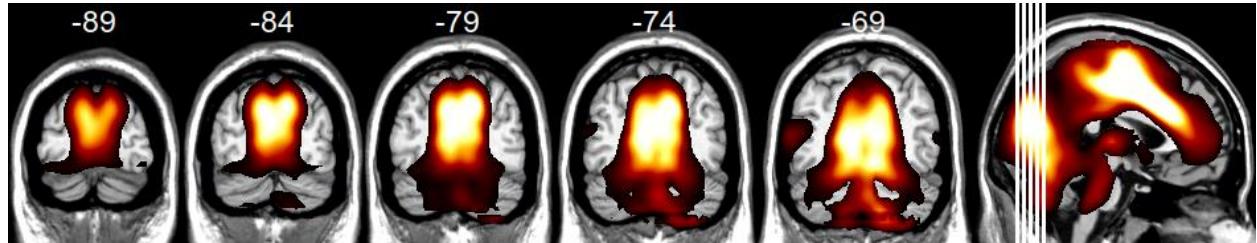


Language Network



Maintaining Internal Attention



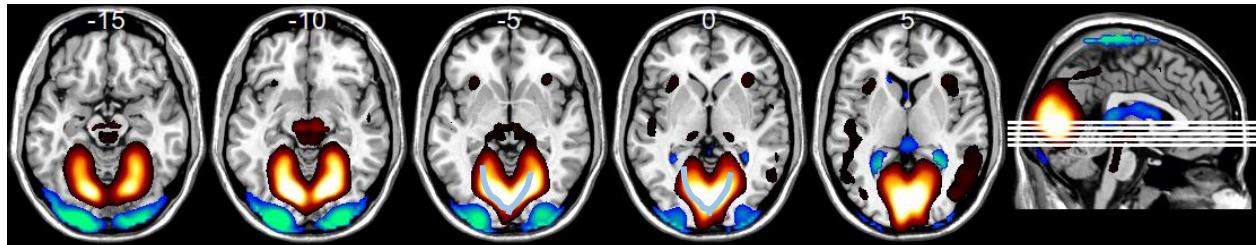
Multiple Demand Network*Initiation**Two-Handed Response**Auditory Perception**Auditory Attention for Response*

Focus on Visual Features (FoVF)
 Previous Name: Focus on Visual Features (FVF)



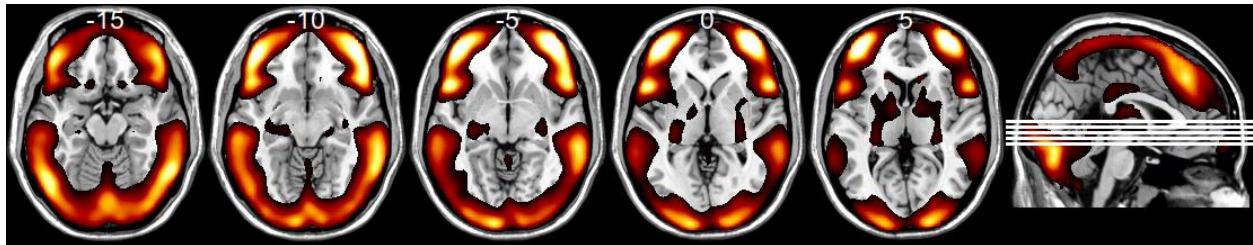
2. **Wishbone: 57, 62, 67, 72, 77**

Wishbone on slice -5 and 0.

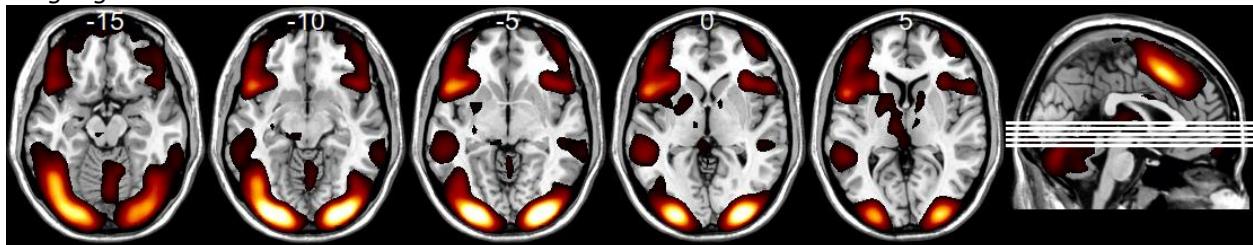


Other Networks:

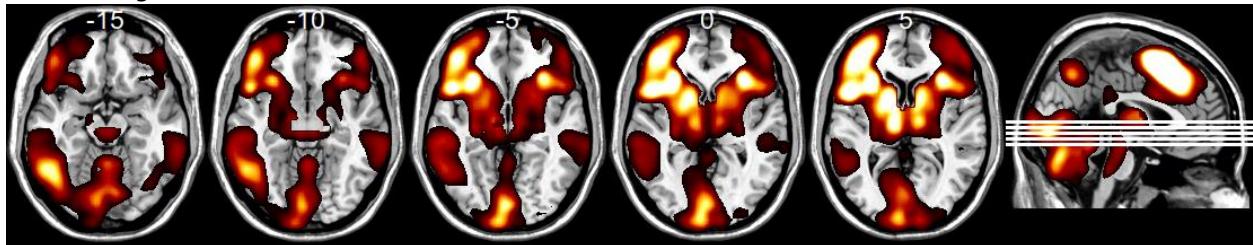
Re-Evaluation

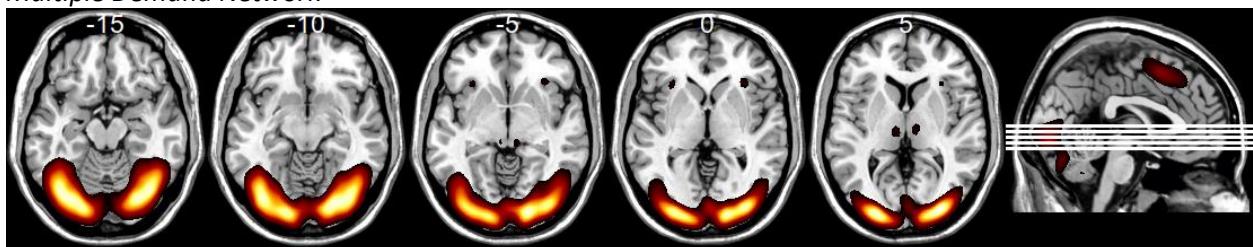
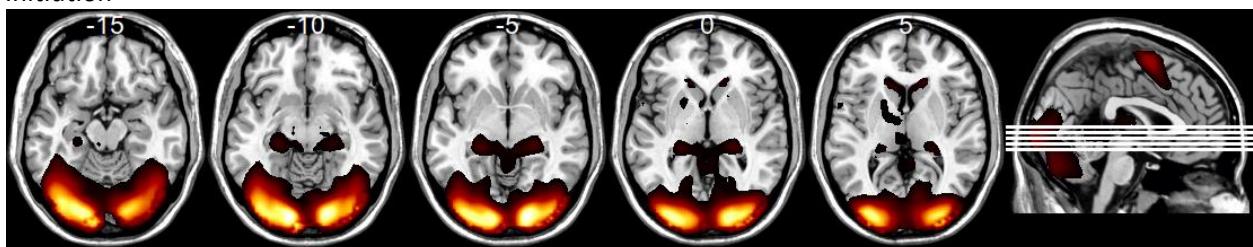
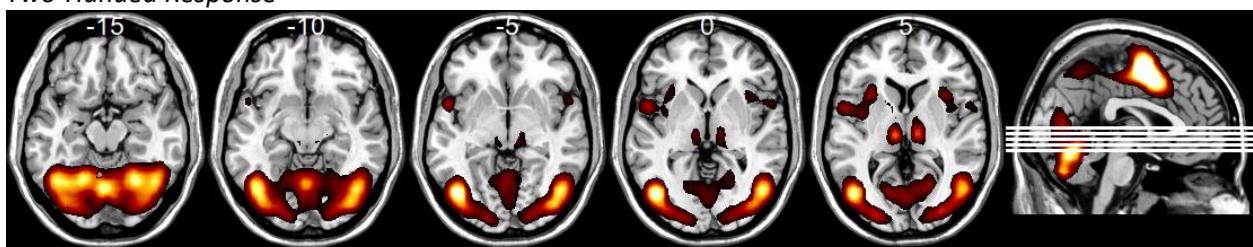
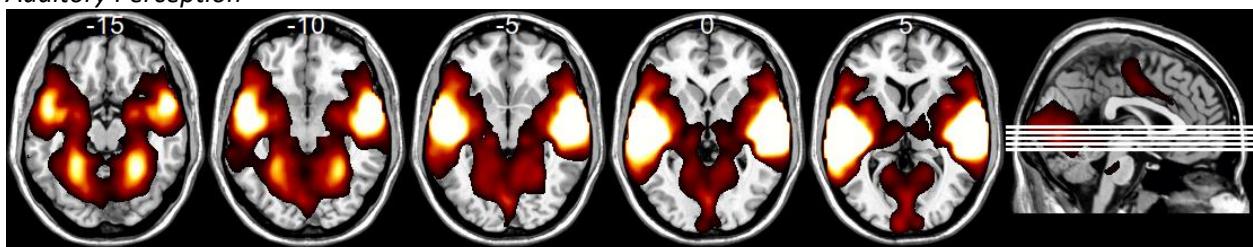
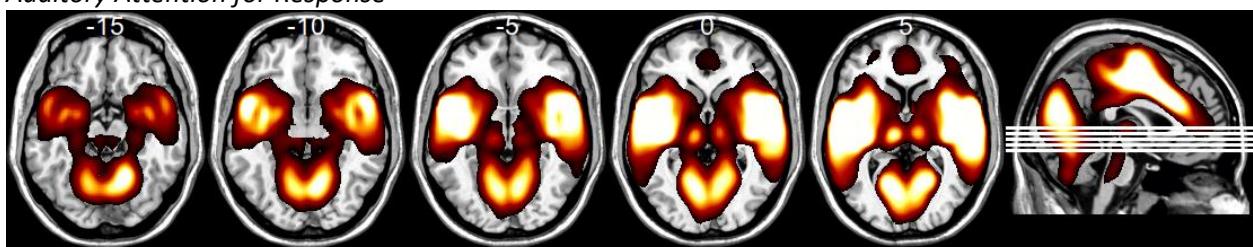


Language Network



Maintaining Internal Attention



Multiple Demand Network*Initiation**Two-Handed Response**Auditory Perception**Auditory Attention for Response*

Appendix

1. Re-Evaluation

Lavigne, K.M., Menon, M., & Woodward, T.S. (2019). Functional Brain Networks Underlying Evidence Integration and Delusions in Schizophrenia. *Schizophrenia Bulletin*, doi:10.1093/schbul/sbz032.

Lavigne, K.M., Metzak, P.D., & Woodward, T.S. (2015). Functional brain networks underlying detection and integration of disconfirmatory evidence. *NeuroImage* 112(2015): 138-151.

2. Language Network

Wong, S.T.S., Goghari, V.M., Sanford, N., Lim, R., Clark, C., Metzak, P.D., Rossell, S.L., Menon, M., & Woodward, T.S. (2020). Functional brain networks involved in lexical decision. *Brain and Cognition*, 138, doi: 10.1016/j.bandc.2019.103631.

3. Maintaining Internal Attention

Sanford, N., Whitman, J.C. & Woodward, T.S. (2020). Task-Merging for finer separation of functional brain networks in working memory. *Cortex*, 125, 246-271.doi: 10.1016/j.cortex.2019.12.014.

4. Multiple Demand Network

Goghari, V.M., Sanford, N., Spilka, M.J., & Woodward, T.S. (2017). Task-Related Functional Connectivity Analysis of Emotion Discrimination in a Family Study of Schizophrenia. *Schizophrenia Bulletin*, 43(6):1348–1362

Lavigne, K.M., Menon, M., & Woodward, T.S. (2019). Functional Brain Networks Underlying Evidence Integration and Delusions in Schizophrenia. *Schizophrenia Bulletin*, doi:10.1093/schbul/sbz032

Lavigne, K.M., Metzak, P.D., & Woodward, T.S. (2015). Functional brain networks underlying detection and integration of disconfirmatory evidence. *NeuroImage* 112(2015): 138-151.

5. Initiation

Metzak, P.D., Riley, J., Wang, L., Whitman, J.C., Ngan, E.T.C. & Woodward, T.S. (2012). Decreased efficiency of task-positive and task-negative networks during working memory in schizophrenia. *Schizophrenia Bulletin*, 38(4): 803-813.

Sanford, N., Whitman, J.C. & Woodward, T.S. (2020). Task-Merging for finer separation of functional brain networks in working memory. *Cortex*, 125, 246-271.doi: 10.1016/j.cortex.2019.12.014.

Woodward, T.S., Feredoes, E., Metzak, P.D., Takane, Y., & Manoach, D.S. (2013). Epoch-specific functional networks involved in working memory. *NeuroImage*, 65: 529-539

6. Right-Handed Response

Lavigne, K.M., Metzak, P.D., & Woodward, T.S. (2015). Functional brain networks underlying detection and integration of disconfirmatory evidence. *NeuroImage* 112(2015): 138-151.

Sanford, N., Whitman, J.C. & Woodward, T.S. (2020). Task-Merging for finer separation of functional brain networks in working memory. *Cortex*, 125, 246-271.doi: 10.1016/j.cortex.2019.12.014.

7. Two-Handed Response

Goghari, V.M., Sanford, N., Spilka, M.J., & Woodward, T.S. (2017). Task-Related Functional Connectivity Analysis of Emotion Discrimination in a Family Study of Schizophrenia. *Schizophrenia Bulletin*, 43(6):1348–1362.

Sanford, N. A. (2019). Functional brain networks underlying working memory performance in schizophrenia : a multi-experiment approach (T). University of British Columbia. Retrieved from <https://open.library.ubc.ca/collections/ubctheses/24/items/1.0387449>

8. Traditional DMN / DMNB

Goghari, V.M., Sanford, N., Spilka, M.J., & Woodward, T.S. (2017). Task-Related Functional Connectivity Analysis of Emotion Discrimination in a Family Study of Schizophrenia. *Schizophrenia Bulletin*, 43(6):1348–1362

Lavigne, K.M., Menon, M., & Woodward, T.S. (2019). Functional Brain Networks Underlying Evidence Integration and Delusions in Schizophrenia. *Schizophrenia Bulletin*, doi:10.1093/schbul/sbz032.

Lavigne, K.M. & Woodward, T.S. (2018). Hallucination and speech-specific hypercoupling in frontotemporal auditory and language networks in schizophrenia using combined task-based fMRI data: An fBIRN study. *Human Brain Mapping*, 2018(39):1582–1595.

Sanford, N., Whitman, J.C. & Woodward, T.S. (2020). Task-Merging for finer separation of functional brain networks in working memory. *Cortex*, 125, 246-271.doi: 10.1016/j.cortex.2019.12.014.

Whitman, J.C., Metzak, P.D., Lavigne, K.M., & Woodward, T.S. (2013). Functional connectivity in a frontoparietal network involving the dorsal anterior cingulate cortex underlies decisions to accept a hypothesis. *Neuropsychologia*, 51(2013):1132–1141.

Wong, S.T.S., Goghari, V.M., Sanford, N., Lim, R., Clark, C., Metzak, P.D., Rossell, S.L., Menon, M., & Woodward, T.S. (2020). Functional brain networks involved in lexical decision. *Brain and Cognition*, 138, doi: 10.1016/j.bandc.2019.103631.

9. Novel DMN / DMNA

10. Auditory Perception

Sanford, N., Whitman, J.C. & Woodward, T.S. (2020). Task-Merging for finer separation of functional brain networks in working memory. *Cortex*, 125, 246-271.doi: 10.1016/j.cortex.2019.12.014.

11. Auditory Attention for Response

Lavigne, K.M. & Woodward, T.S. (2018). Hallucination and speech-specific hypercoupling in frontotemporal auditory and language networks in schizophrenia using combined task-based fMRI data: An fBIRN study. *Human Brain Mapping*, 2018(39):1582-1595.

Sanford, N. A. (2019). Functional brain networks underlying working memory performance in schizophrenia : a multi-experiment approach (T). University of British Columbia. Retrieved from <https://open.library.ubc.ca/collections/ubctheses/24/items/1.0387449>

12. Focus on Visual Features

Sanford, N. A. (2019). Functional brain networks underlying working memory performance in schizophrenia : a multi-experiment approach (T). University of British Columbia. Retrieved from <https://open.library.ubc.ca/collections/ubctheses/24/items/1.0387449>

Woodward, T.S., Feredoes, E., Metzak, P.D., Takane, Y., & Manoach, D.S. (2013). Epoch-specific functional networks involved in working memory. *NeuroImage*, 65: 529-539