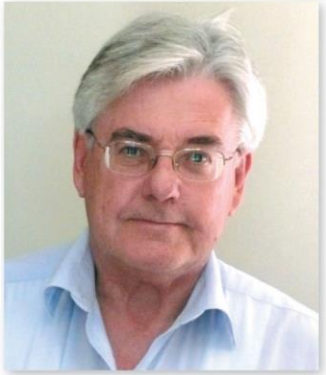




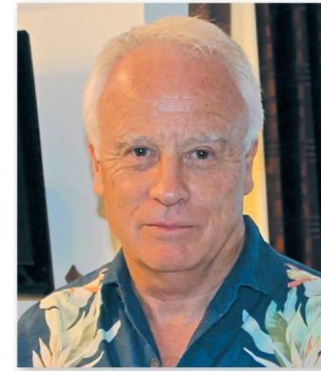
Professor Nik Bogduk

Professor
Pain Medicine
University of Newcastle



Mr Steve August

Physiotherapist
Dunedin



Dr Peter Gendall

Musculoskeletal Radiologist
Hamilton

Thursday, June 8, 2017

8:30 - 10:30 WS #5: Musculoskeletal Medicine 1

(Room 4)

HEADACHES OF CERVICAL ORIGIN

CERVICAL HEADACHE

CERVICOGENIC HEADACHE

Nikolai Bogduk

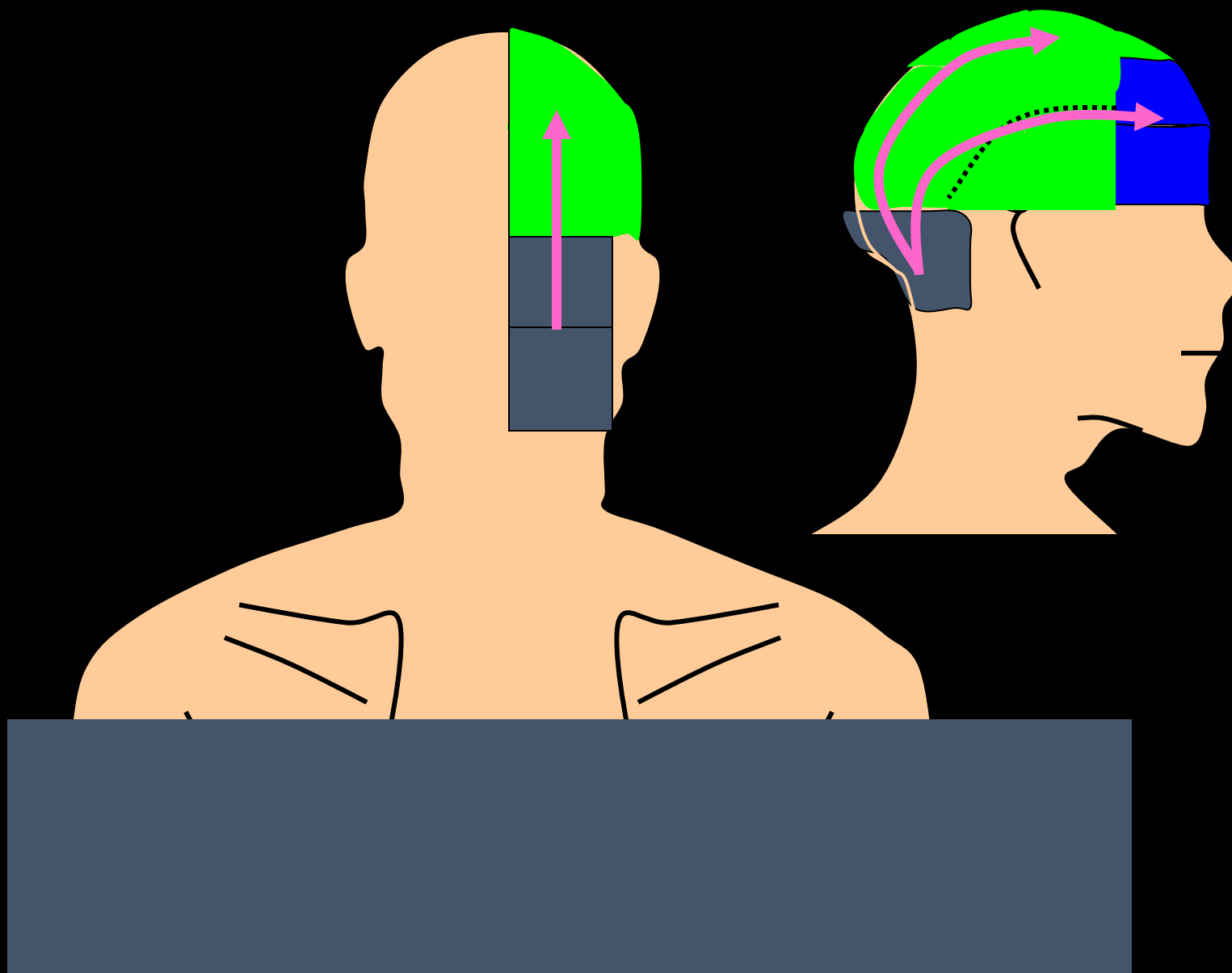
Emeritus Professor of Pain Medicine

University of Newcastle

REFERRED PAIN

from

CERVICAL SPINE



NORMAL VOLUNTEERS

Cyriax J. Rheumatic headache. *Brit Med J* 1938; 2:1367-1368.

Campbell DG, Parsons CM. Referred head pain and its concomitants. *J Nerv Ment Dis* 1944; 99:544-551.

Feinstein B, Langton JBK, Jameson RM, Schiller F. Experiments on referred pain from deep somatic tissues. *J Bone Joint Surg* 1954; 36A:981-997.

Wolff HG. Headache and Other Head Pain (ed 2). New York: Oxford University Press, 1963, 582-616.

Piovesan EJ, Kowacs PA, Tatsui CE, Lange MC, Ribas LC, Werneck LC. Referred pain after painful stimulation of the greater occipital nerve in humans: evidence of convergence of cervical afferences on trigeminal nuclei. *Cephalalgia* 2001; 21:107-109.

Dwyer A, Aprill C, Bogduk N 19 Cervical zygapophysial joint pain patterns I: a study in normal volunteers. *Spine* 1990; 15:453-457.

Dreyfuss P, Michaelsen M, Fletcher D. Atlanto-occipital and lateral atlanto-axial joint pain patterns. *Spine* 1994; 19:1125-1131.

Cyriax J. Rheumatic headache. Brit Med J 1938; 2:1367-1368.

Campbell DG, Parsons CM. Referred pain and its accomitants. J Nerv Ment Dis 1944; 99:544-551.

Feinstein B, Langton JBK, Jameson J. Studies on referred pain from deep somatic tissues. J Bone Jt Surg 1957; 39:1-17.

Wolff HG. Headache and Other Head Pain (ed 2). New York: Oxford University Press, 1963, 582-616.

Piovesan EJ, Kowacs PA, Tatsui CE, Lange MC, Ribas LC, Werneck LC. Referred pain after painful stimulation of the cervical vertebrae in humans: evidence of convergence of cervical afferents in the trigeminal ganglion. Cephalalgia 2001; 21:107-109.

Dwyer A, Aprill C, Bogduk N. Cervical zygapophyseal joint pain patterns I: a study in normal volunteers. Spine 1993; 18:1125-1131.

Dreyfuss P, Michaelsen M, Fletcher DT. Atlanto-occipital and lateral atlanto-axial joint pain patterns. Spine 1994; 19:1125-1131.

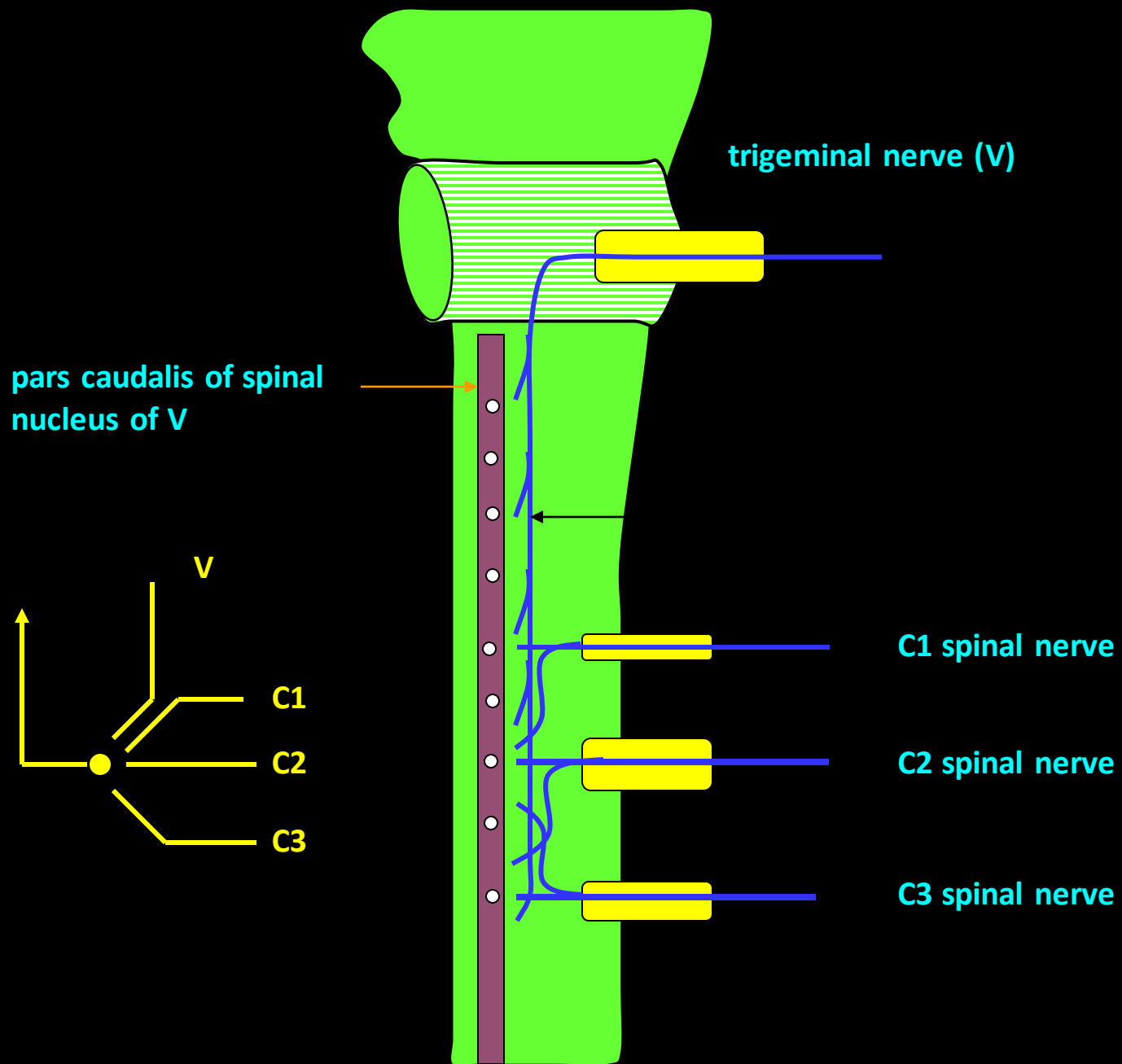
MUSCLES

GON

C2-3

C1-2

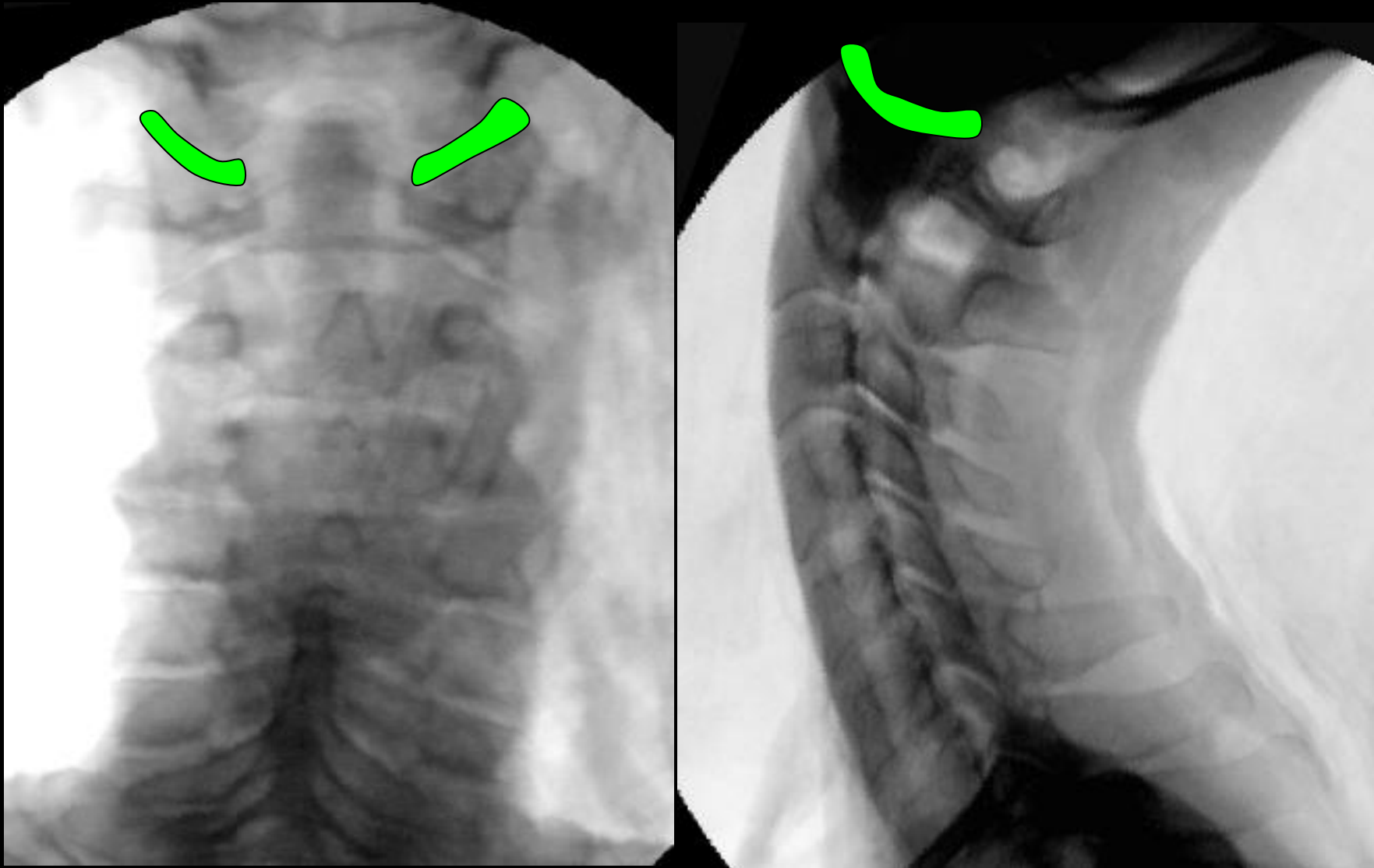
NEUROANATOMY



SOURCES

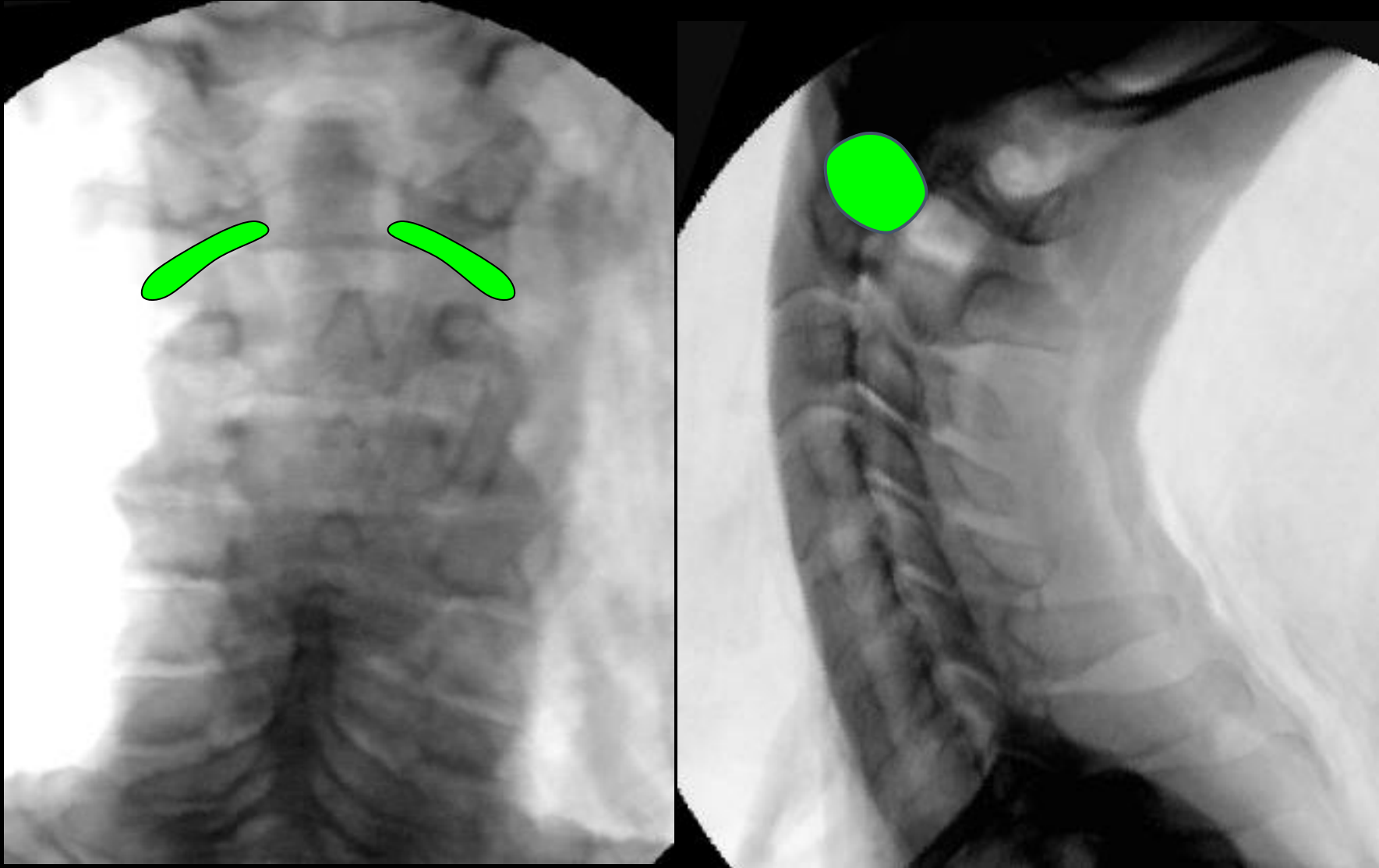


SOURCES



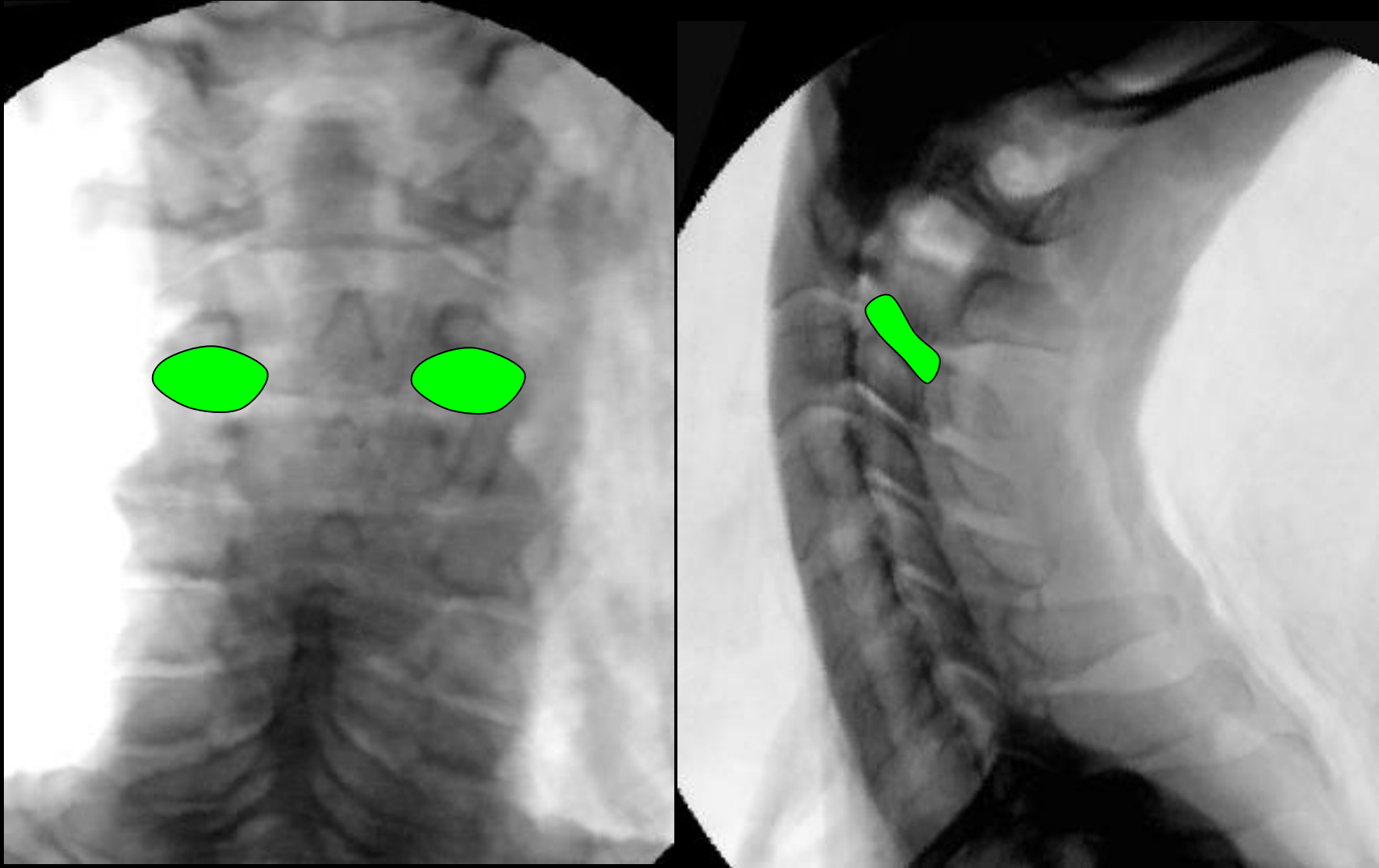
Atlanto-occipital joints

SOURCES



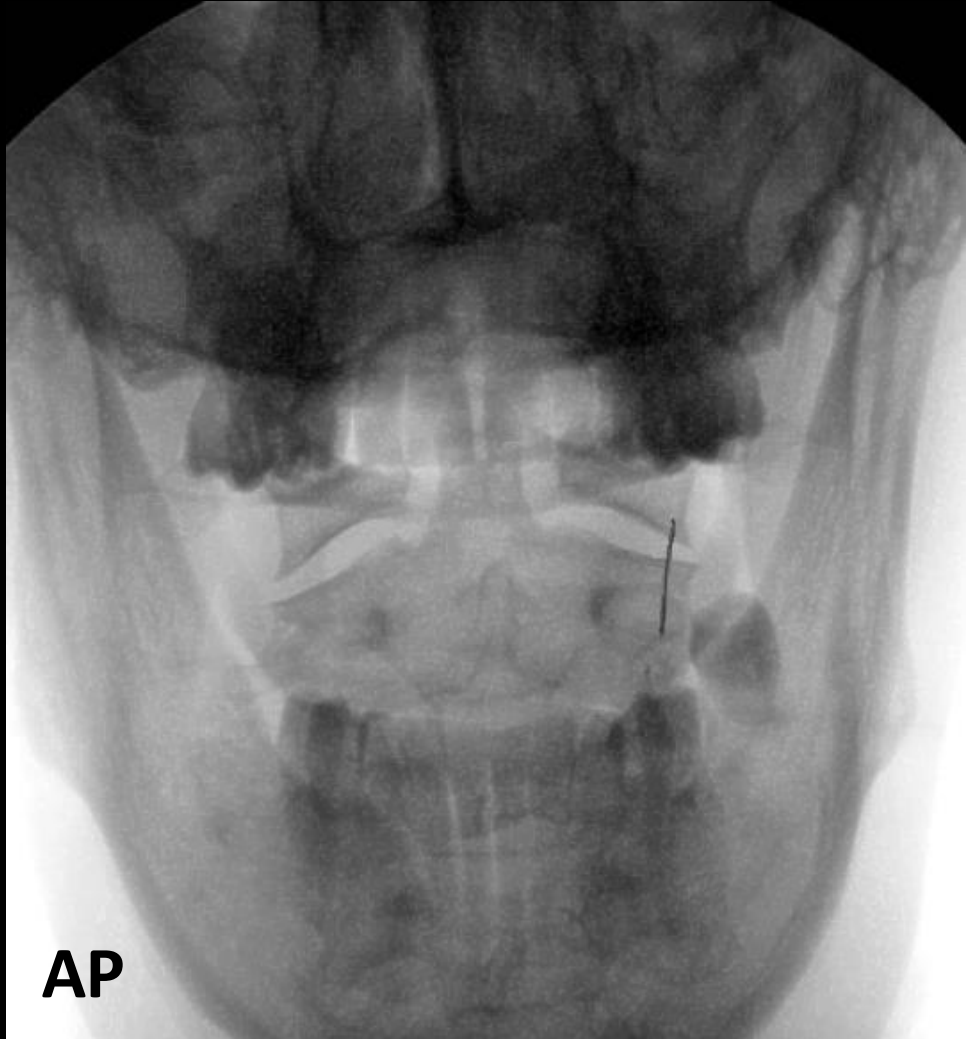
Lateral atlanto-axial joints

SOURCES



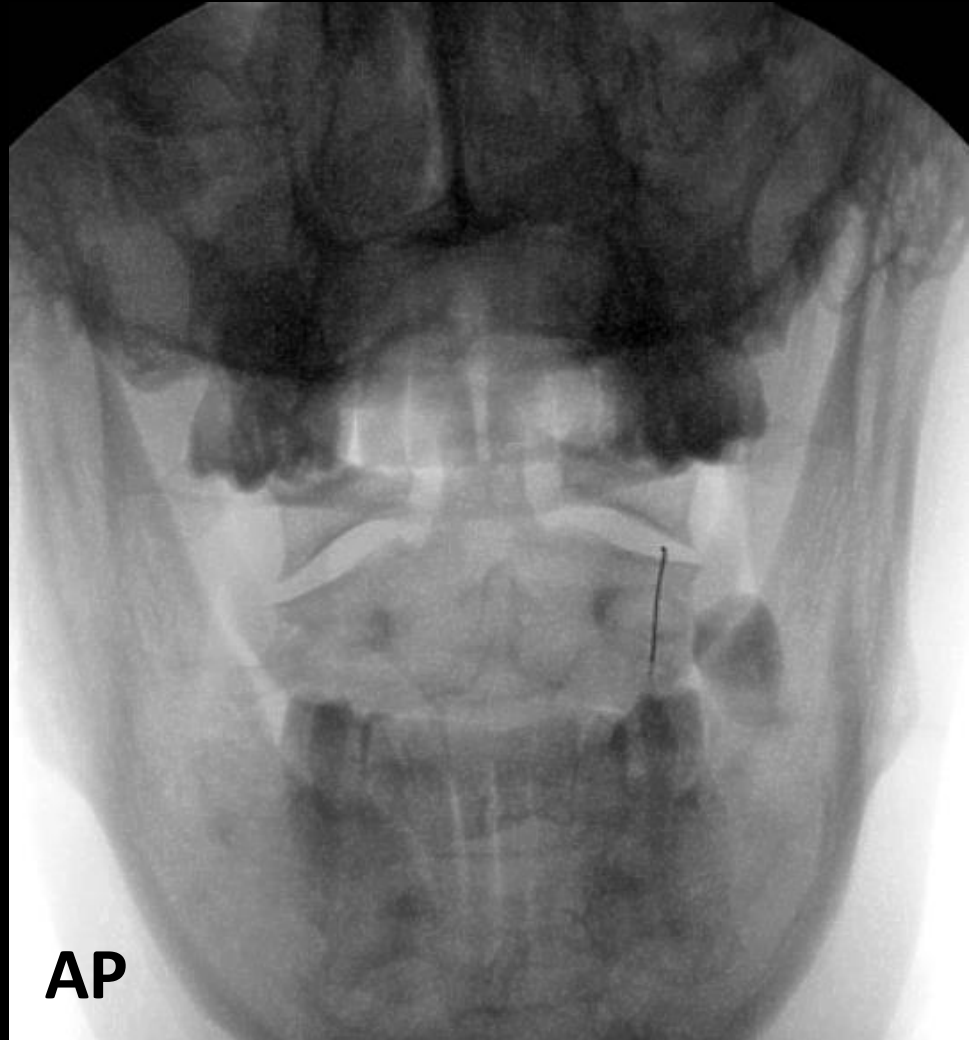
C2-3 Zygapophysial joints

Preliminary: hit bone



LATERAL ATLANTO-AXIAL JOINT BLOCKS

Enter joint



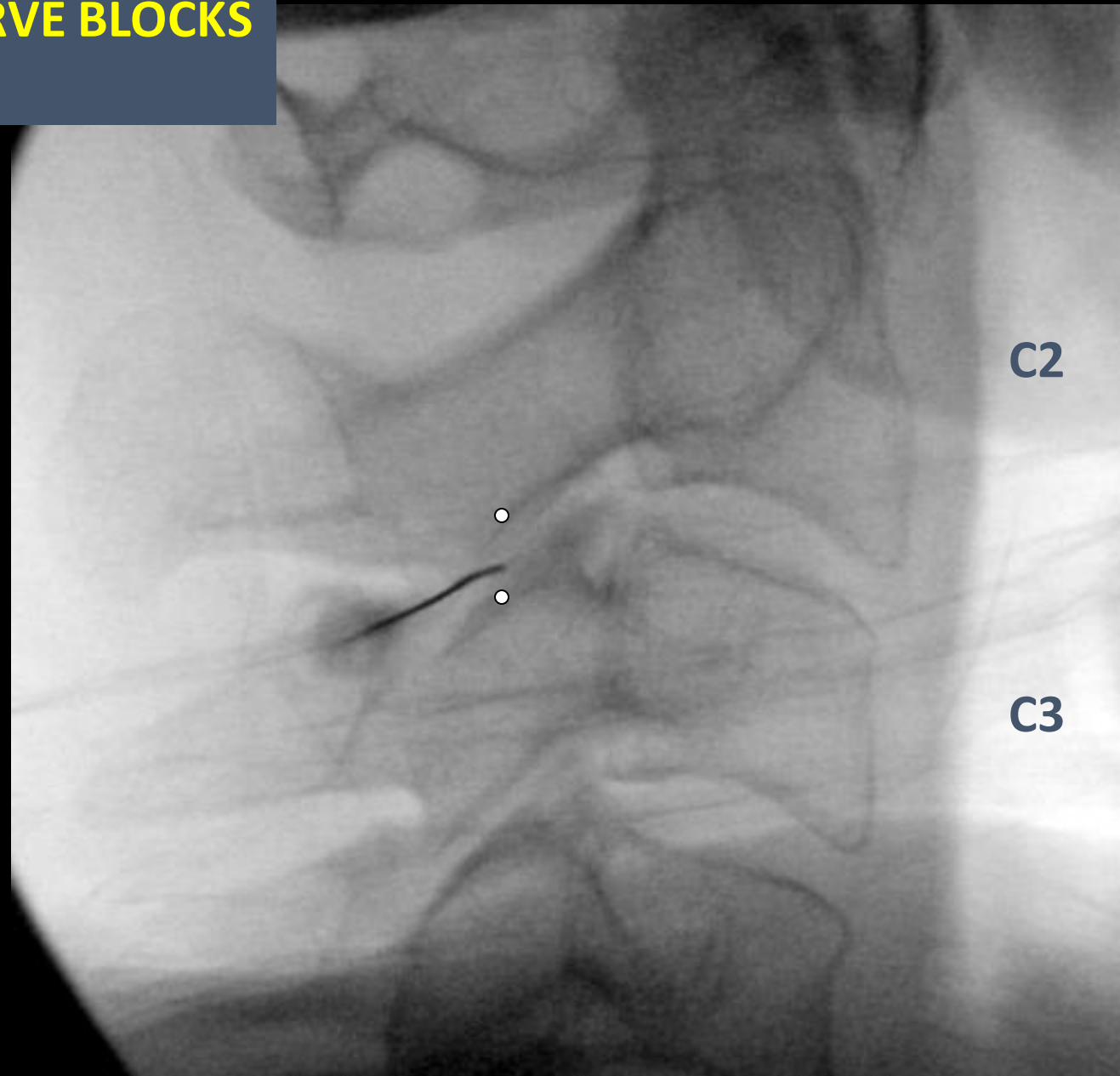
LATERAL ATLANTO-AXIAL JOINT BLOCKS

Arthrogram

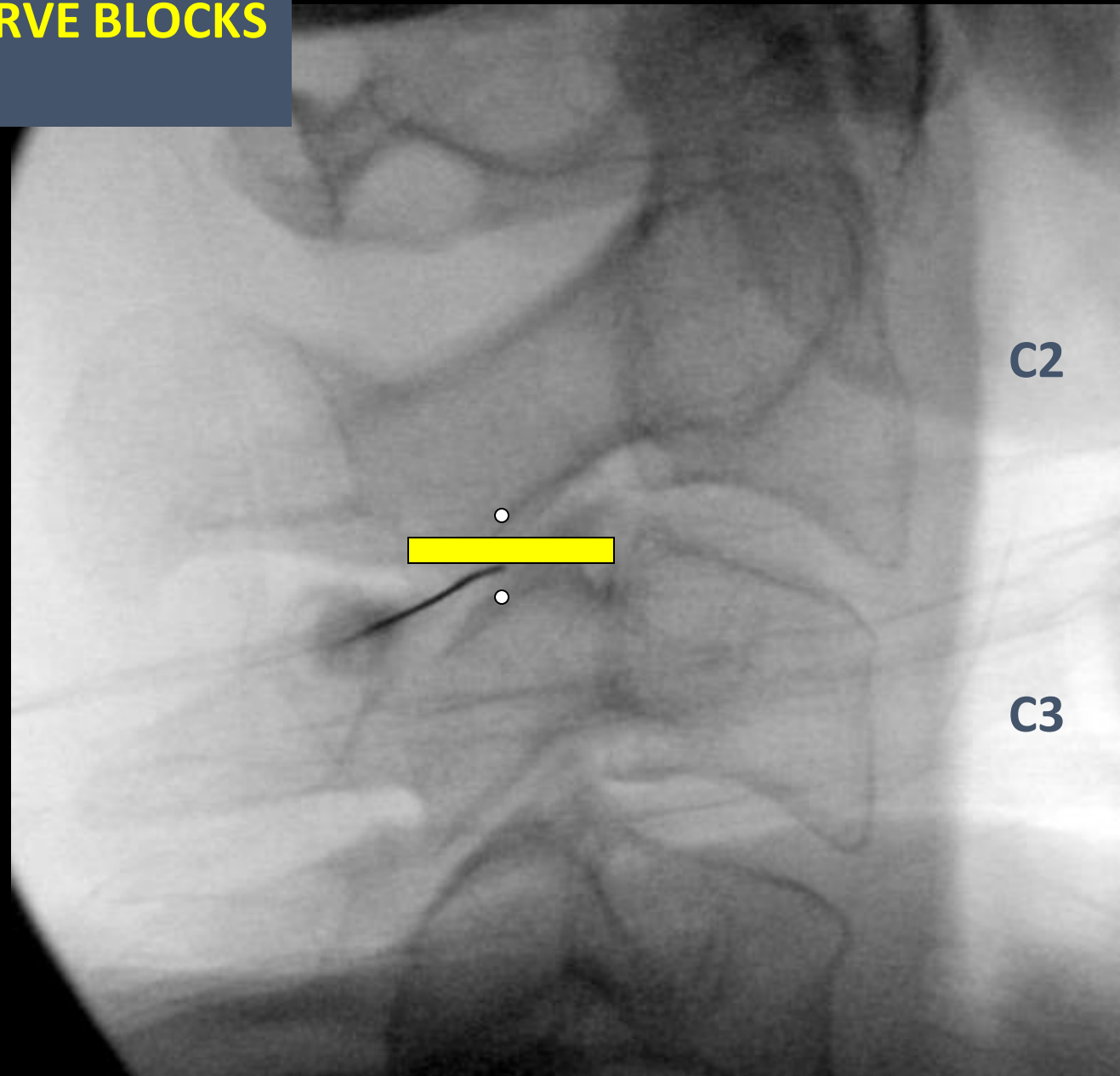


LATERAL ATLANTO-AXIAL JOINT BLOCKS

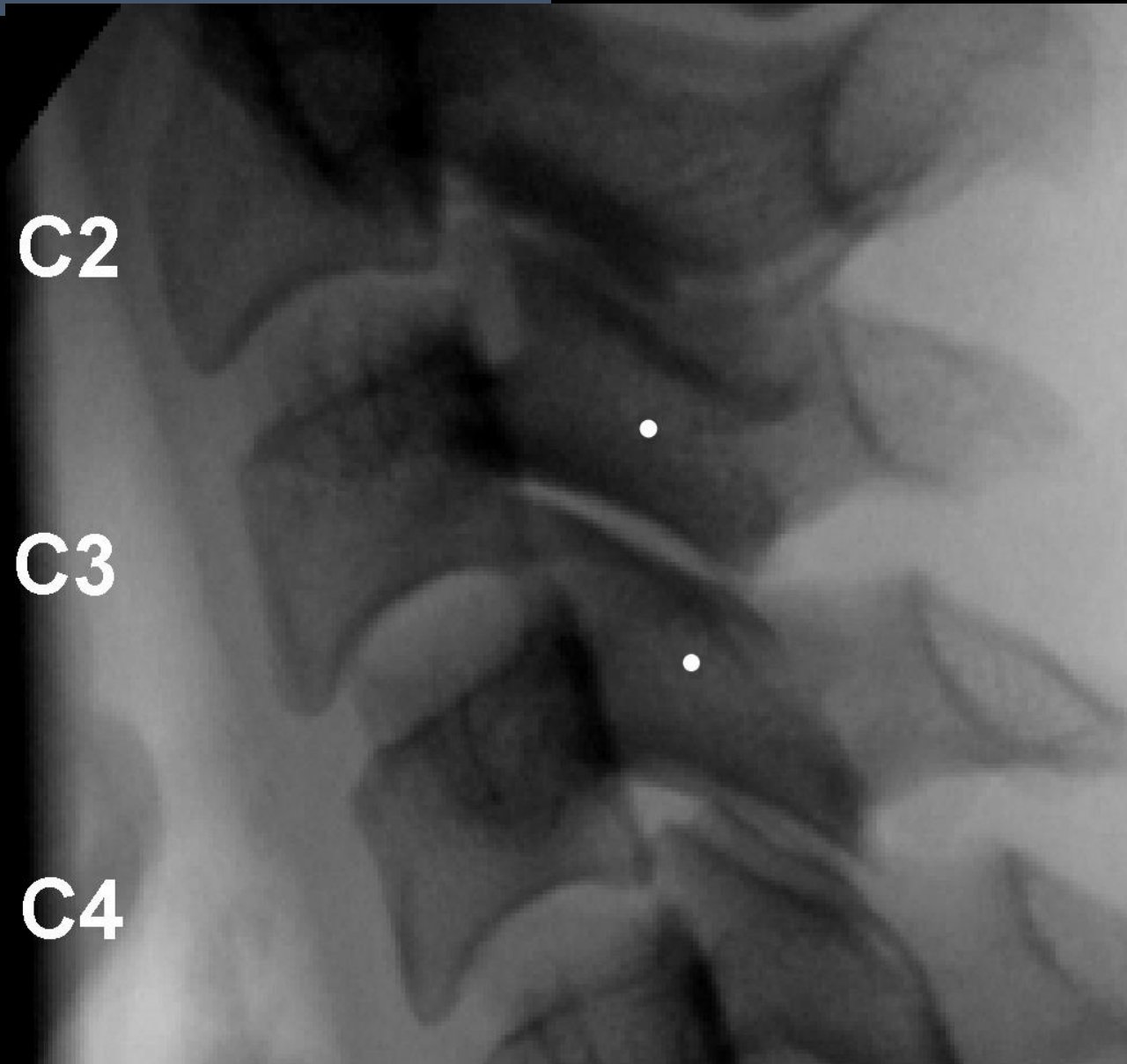
THIRD OCCIPITAL NERVE BLOCKS



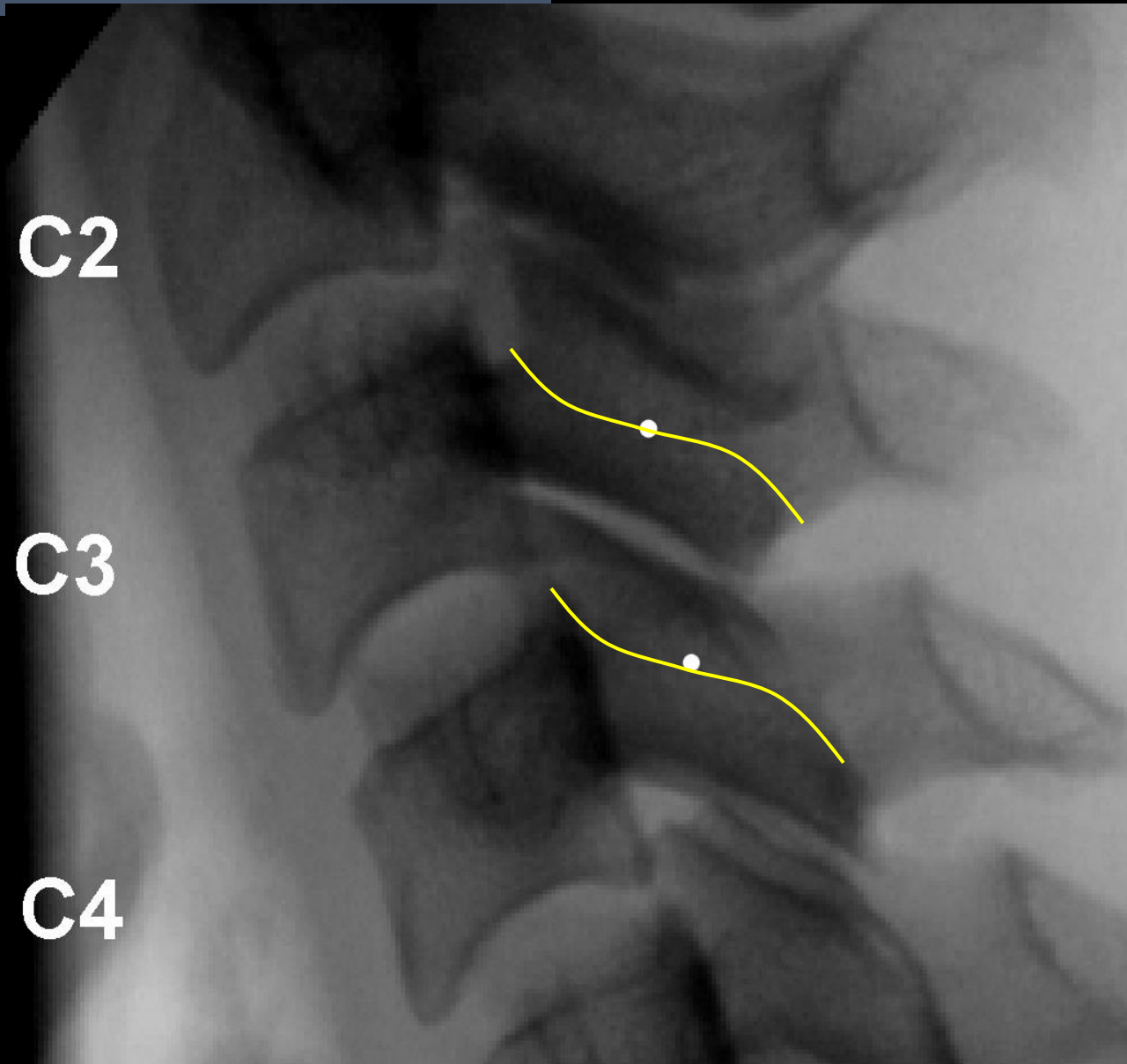
THIRD OCCIPITAL NERVE BLOCKS



C3,4 medial branch blocks



C3,4 medial branch blocks

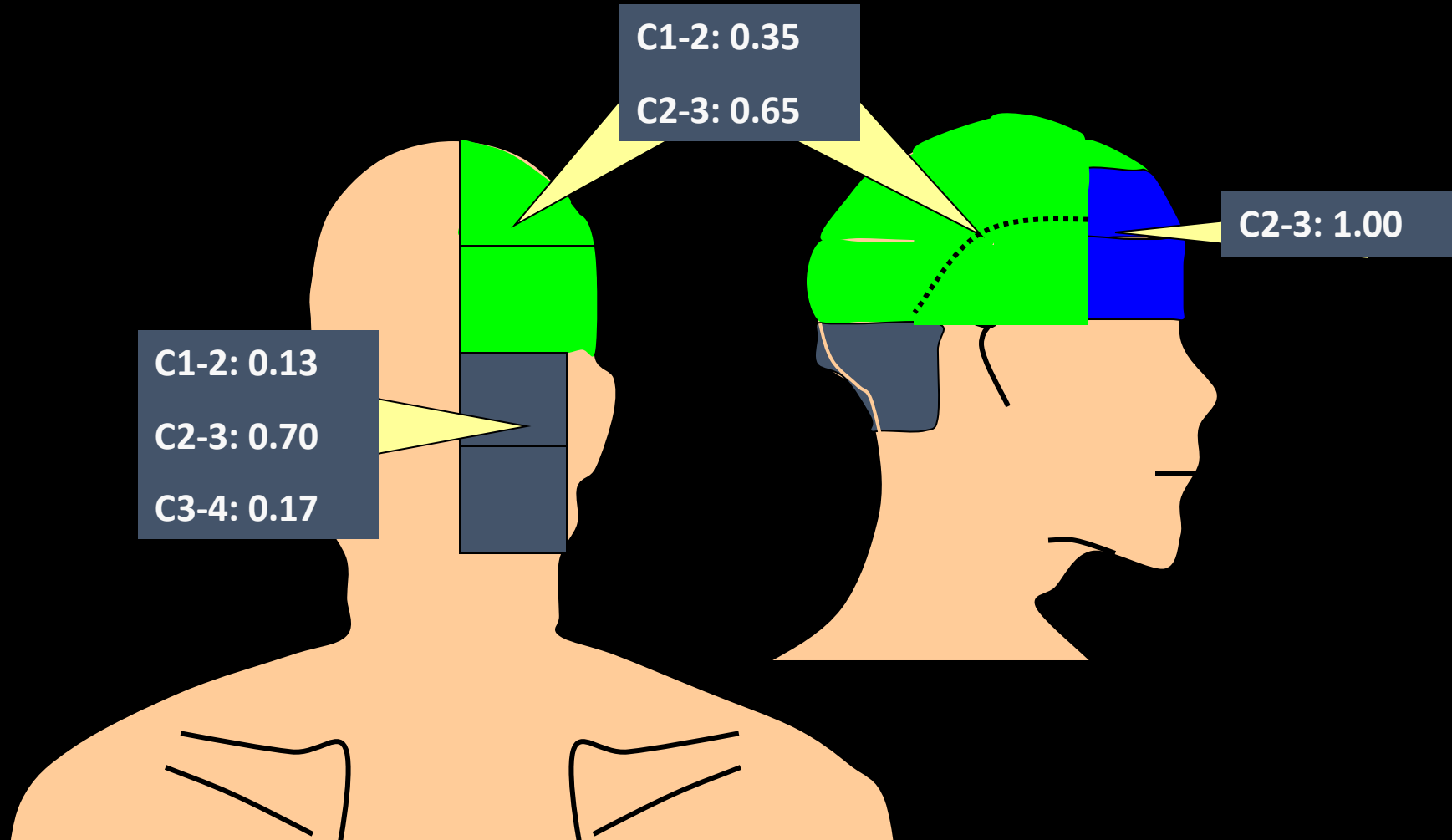


C3,4 medial branch blocks



C3,4 medial branch blocks





Cooper G, Bailey B, Bogduk N. Cervical zygapophysial joint pain maps. Pain Medicine 2007; 8:344-353.

PREVALENCE

C1-2

Unknown

Might be > 16%

Aprill C, Axinn MJ, Bogduk N. Occipital headaches stemming from the lateral atlanto-axial (C1-2) joint. Cephalalgia 2002; 22:15-22.

C2-3

53% in headache after whiplash

Lord S, Barnsley L, Wallis B, Bogduk N. Third occipital headache: a prevalence study. J Neurol Neurosurg Psychiatr 1994; 57:1187-1190.

A PERSONAL AUDIT

Thanks to

Dr Jay Govind

Dr Wade King

Dr Ian Painter

Sr Beverly Bailey

“Probable cervicogenic headache”

pain starting in the neck

at least three of:

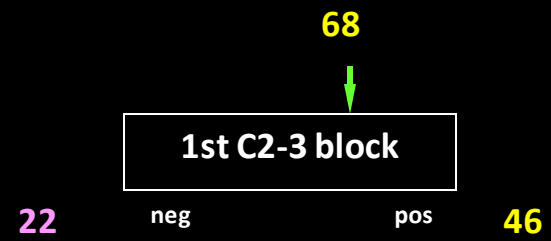
- **headache constant non-throbbing**
- **concomitant pain in the neck or shoulder**
- **aggravated by neck movement**
- **reduced range of motion of the neck**
- **onset of headache shortly after neck trauma.**

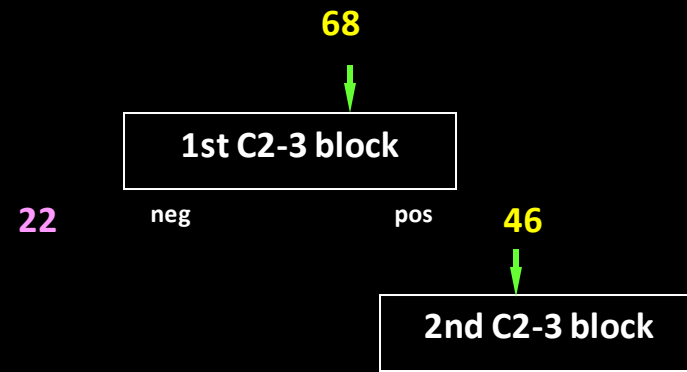
Patients with probable cervicogenic headache
in whom headache was the **dominant** symptom

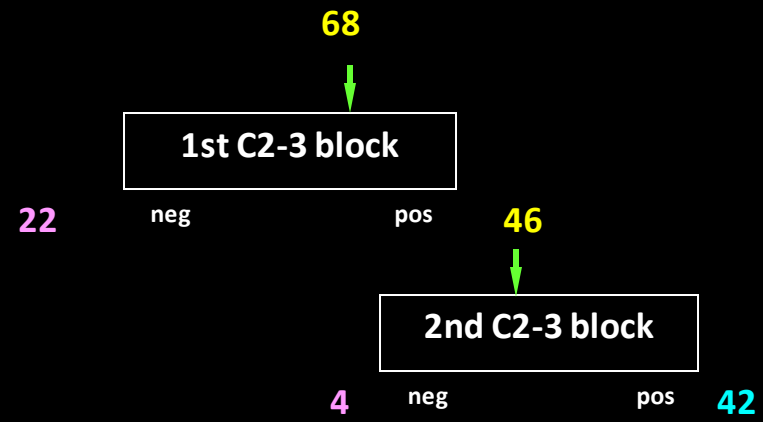
68

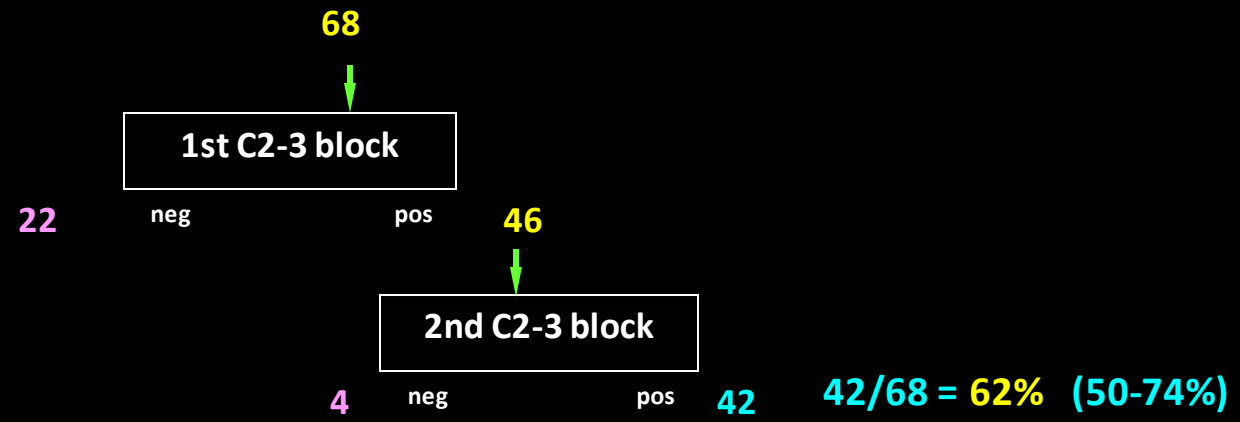


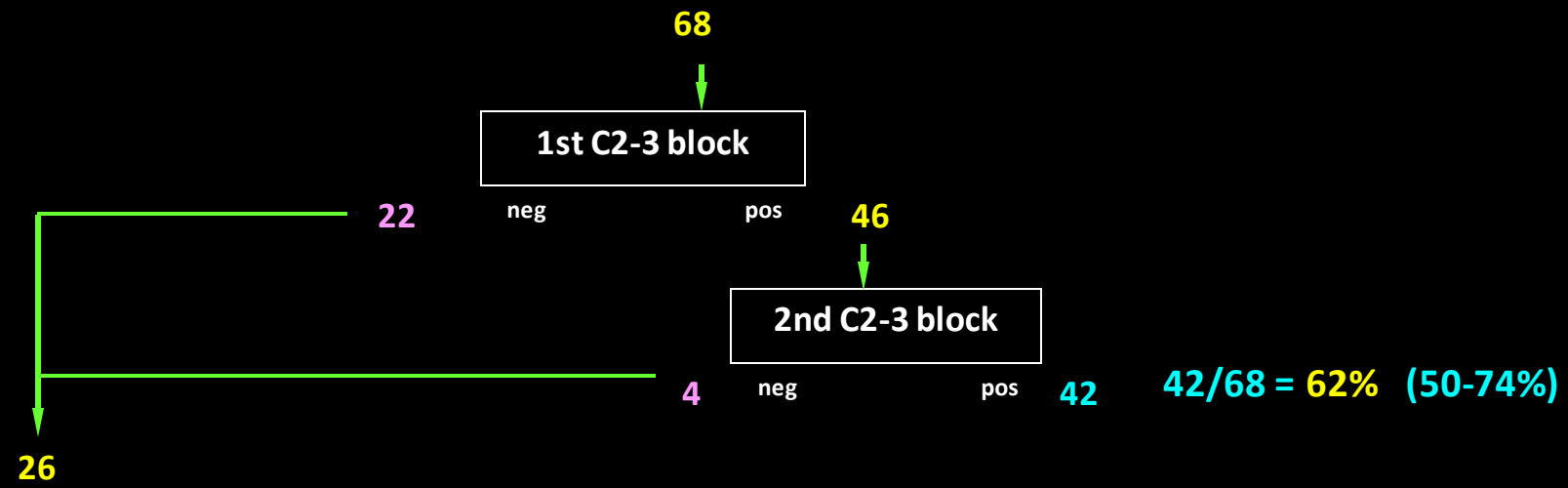
1st C2-3 block

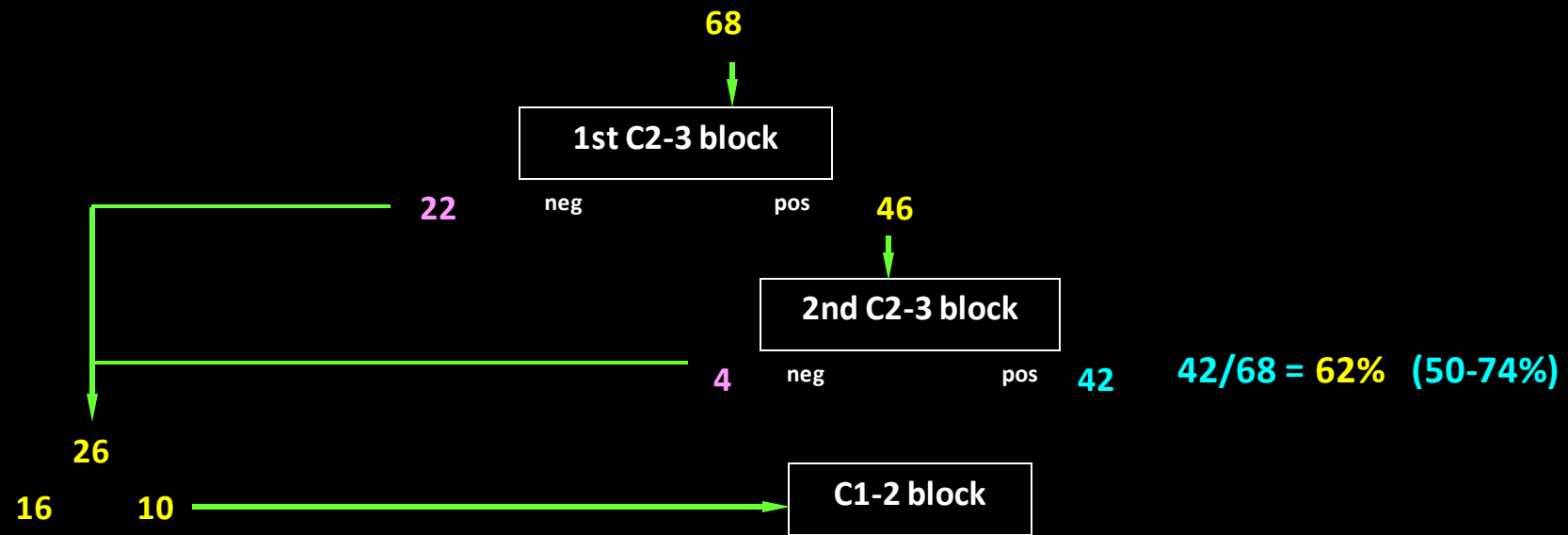


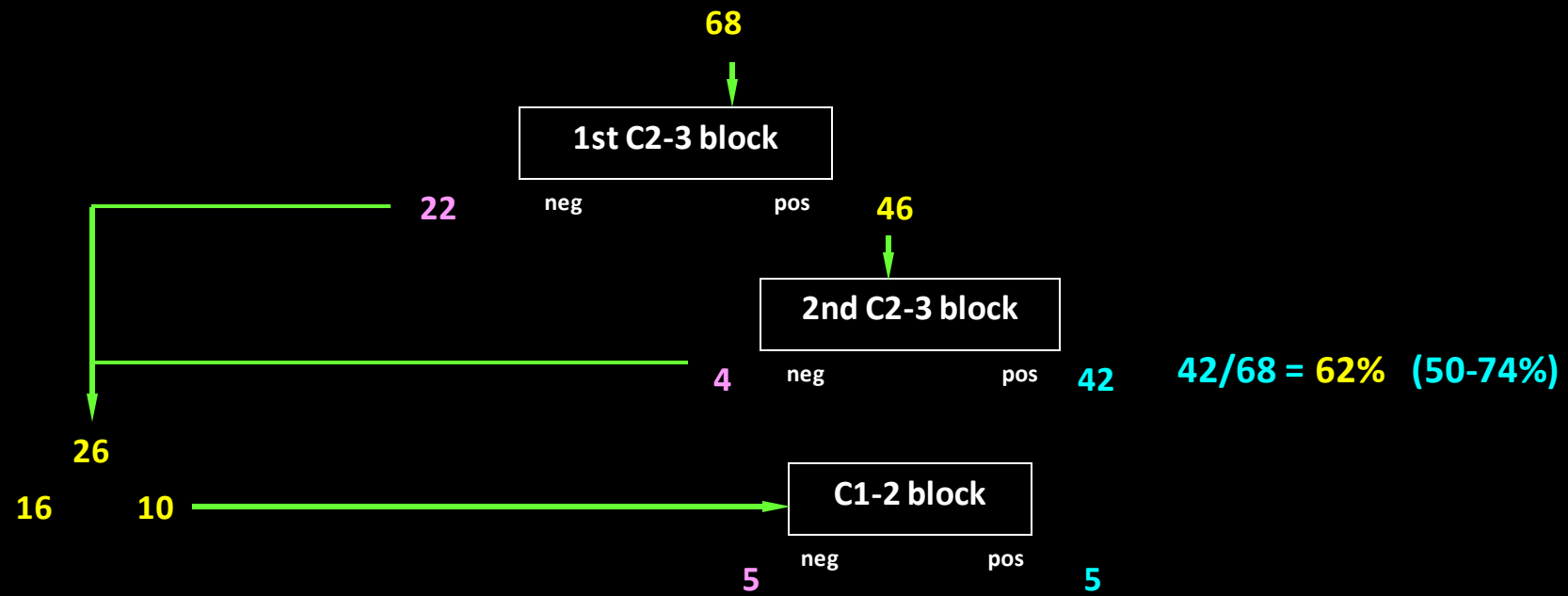


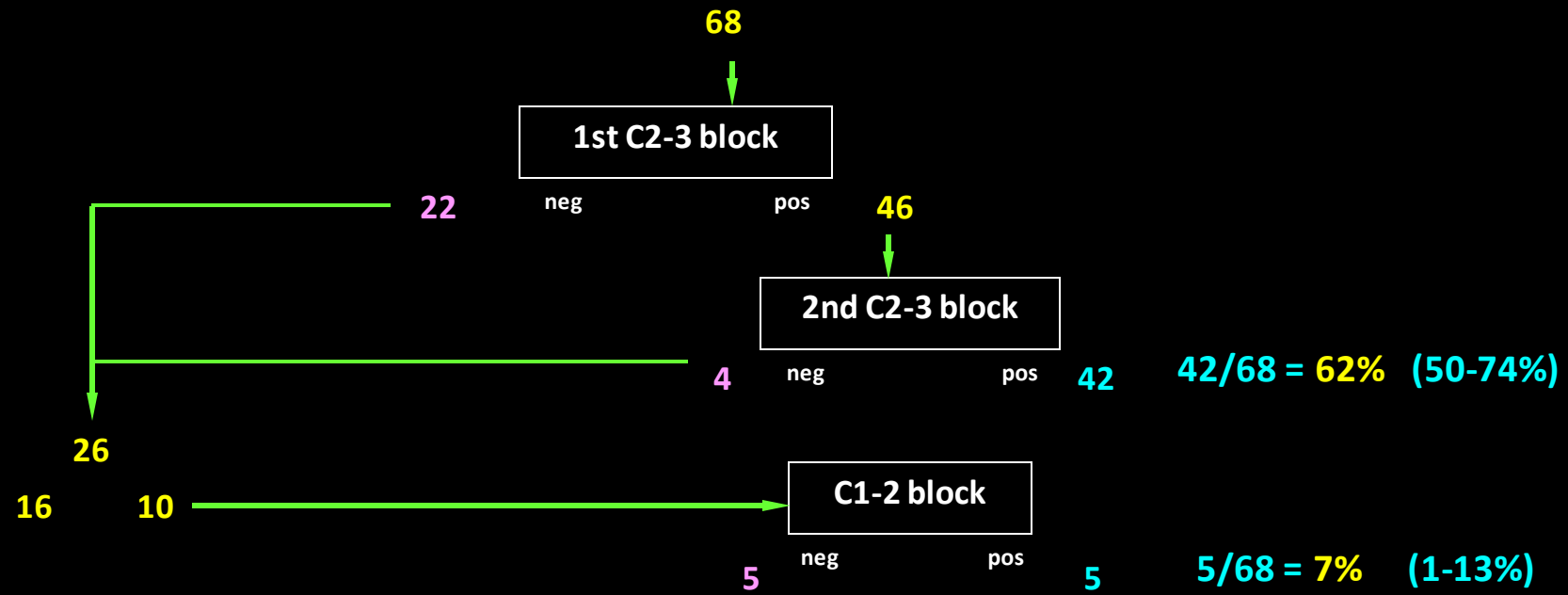


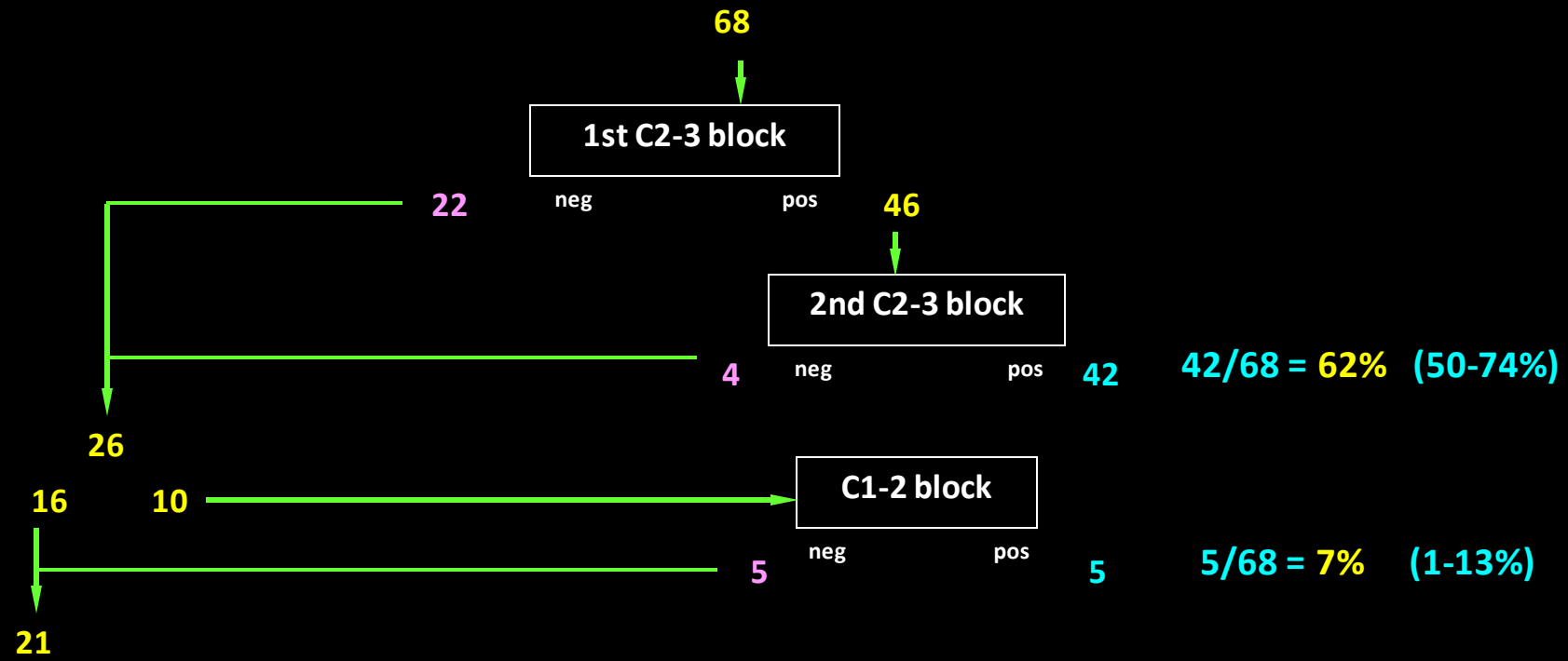


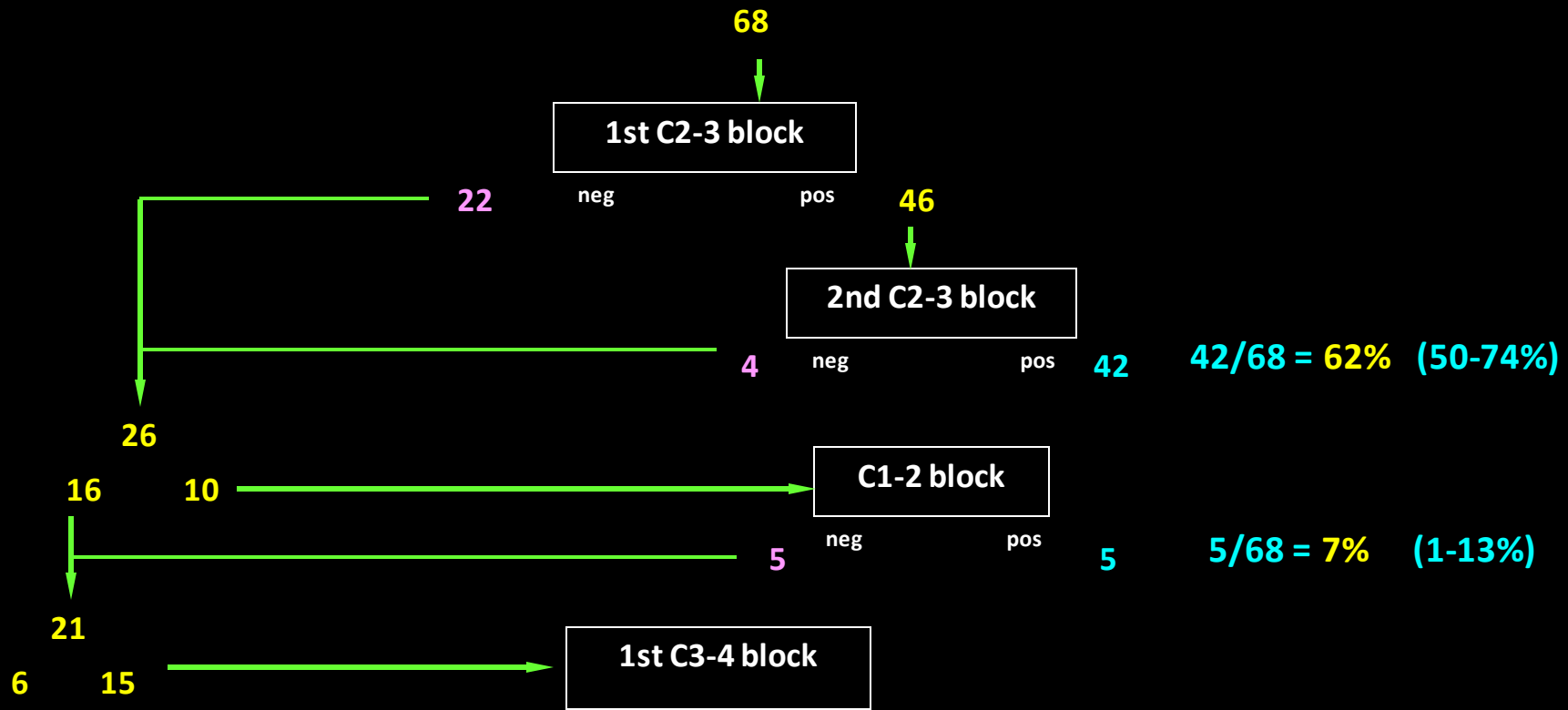


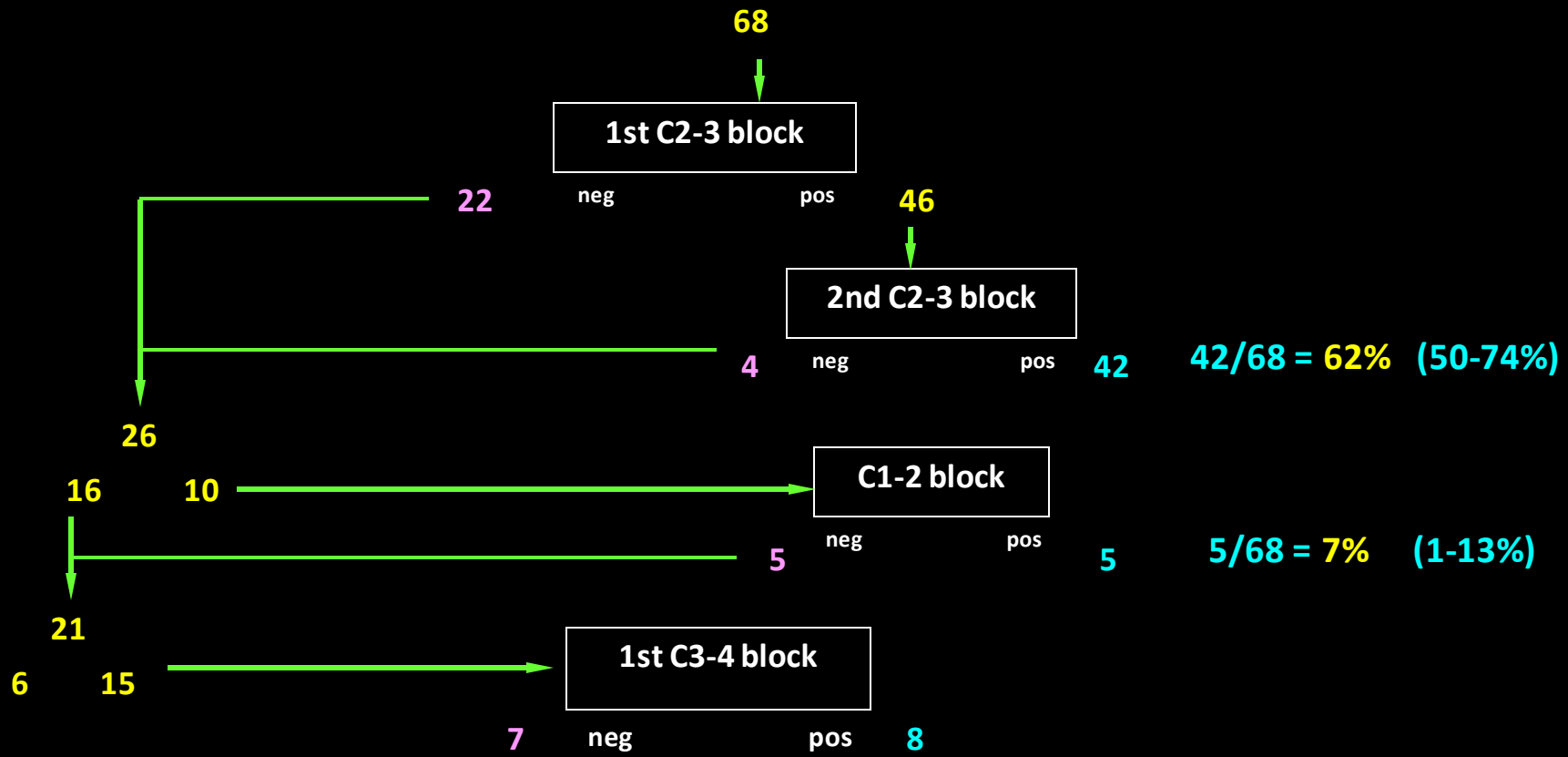


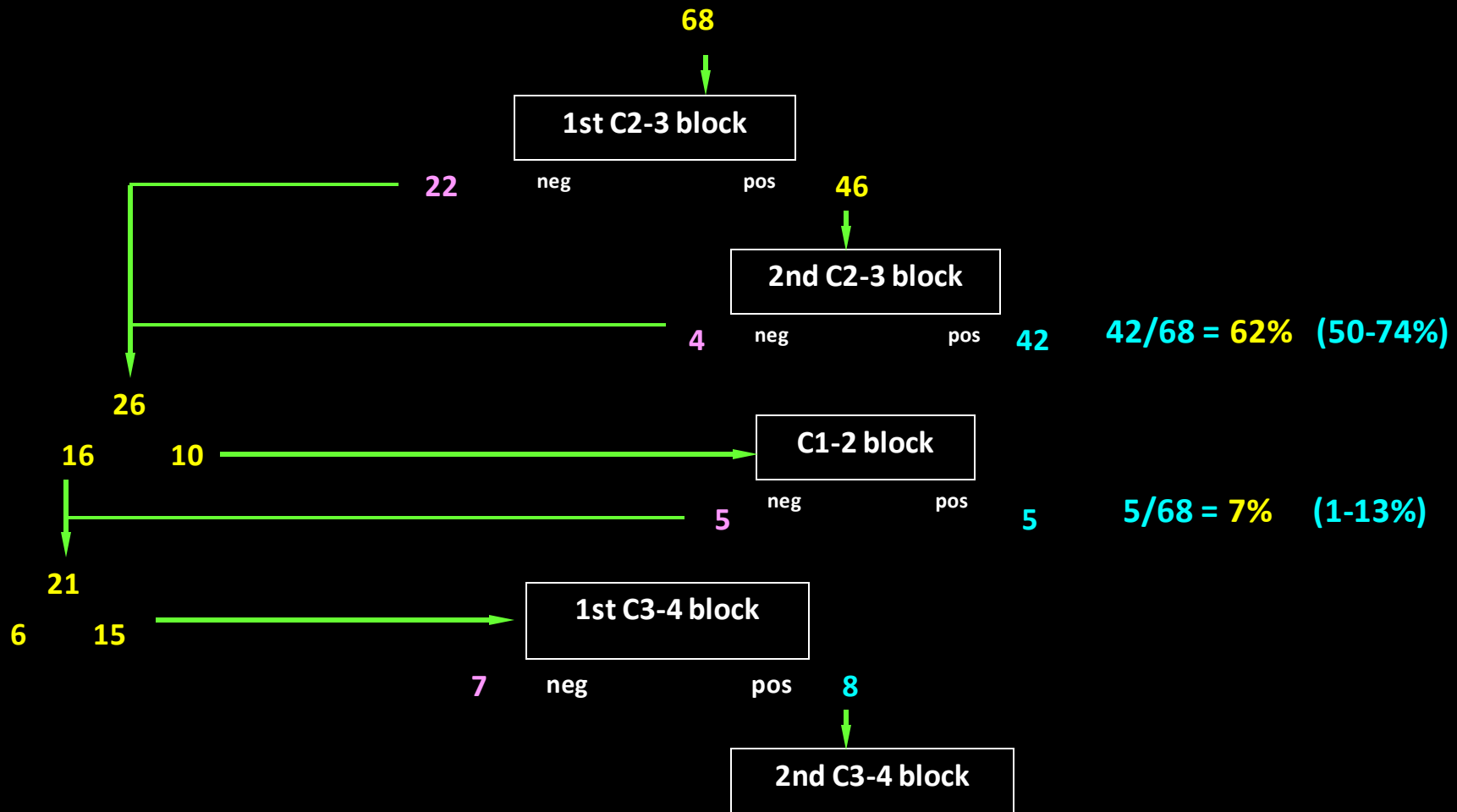


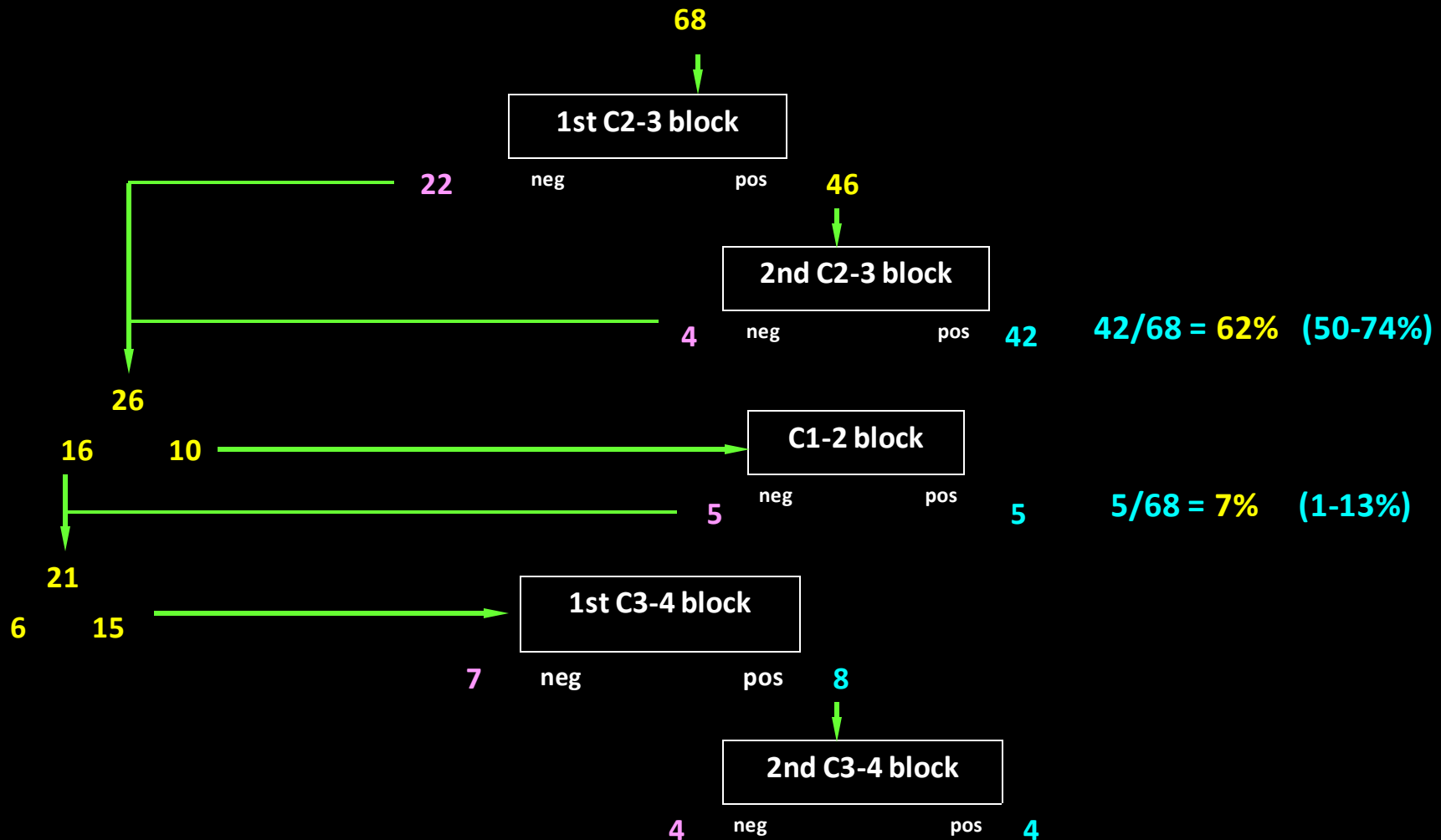


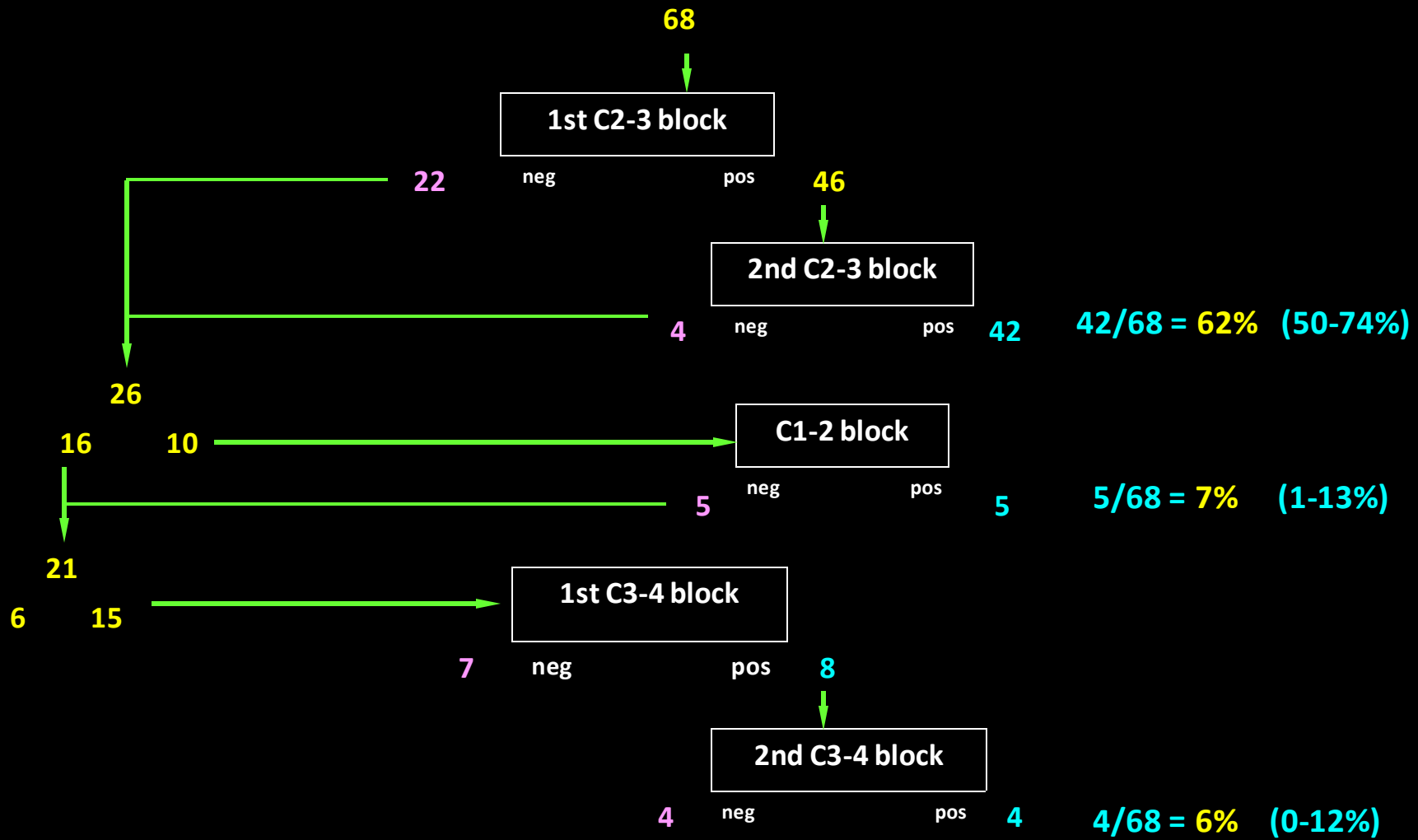


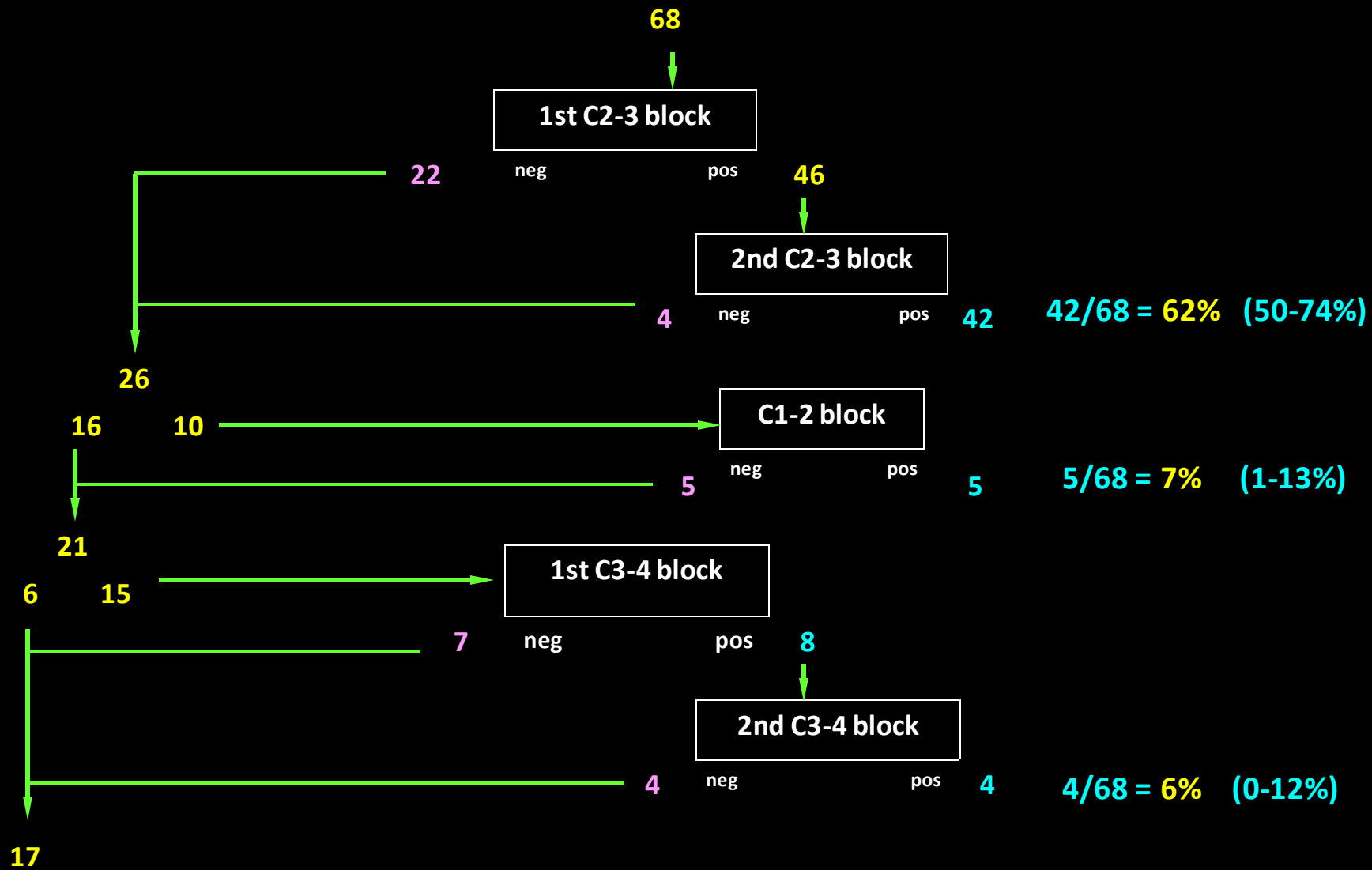


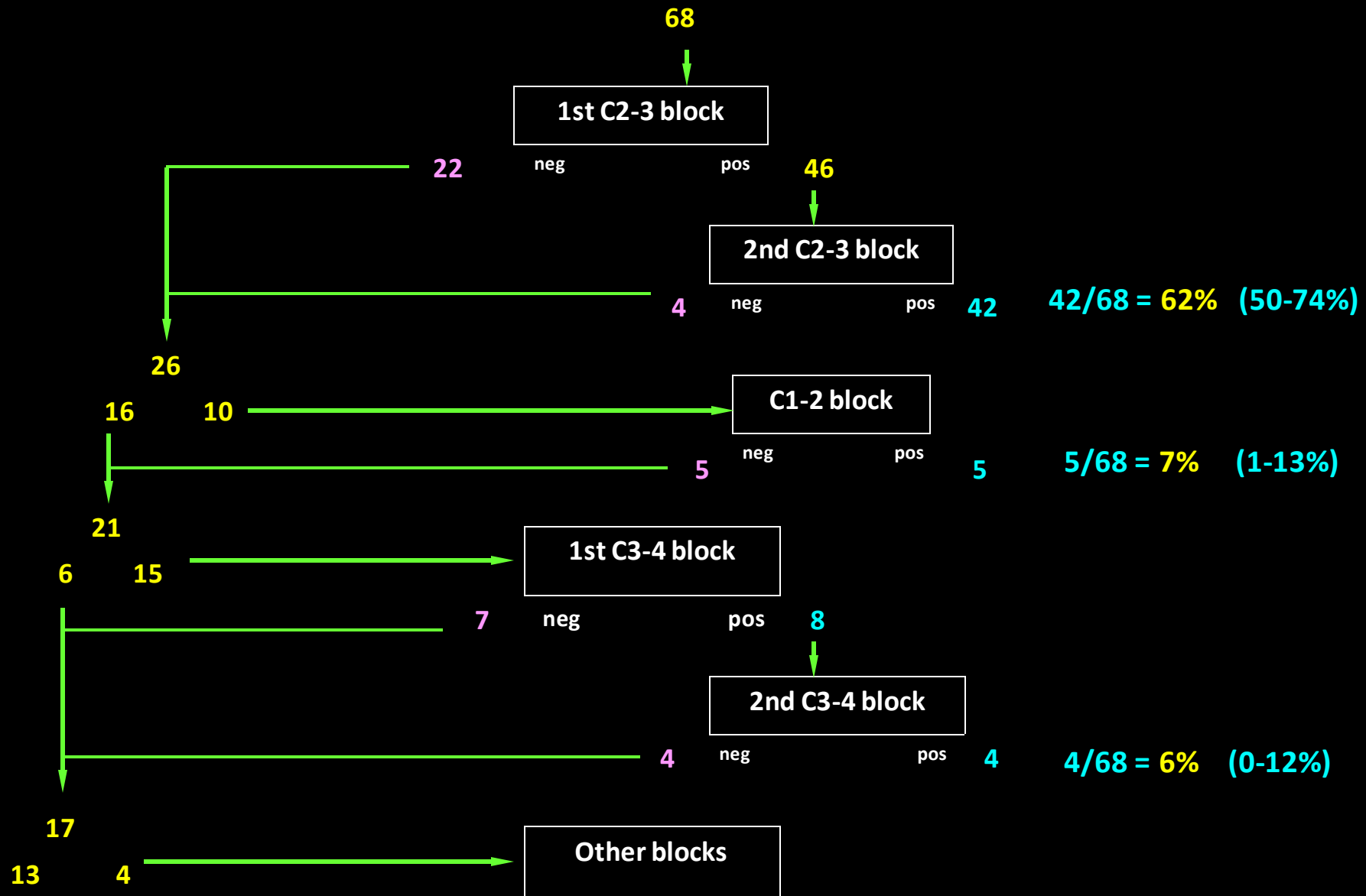


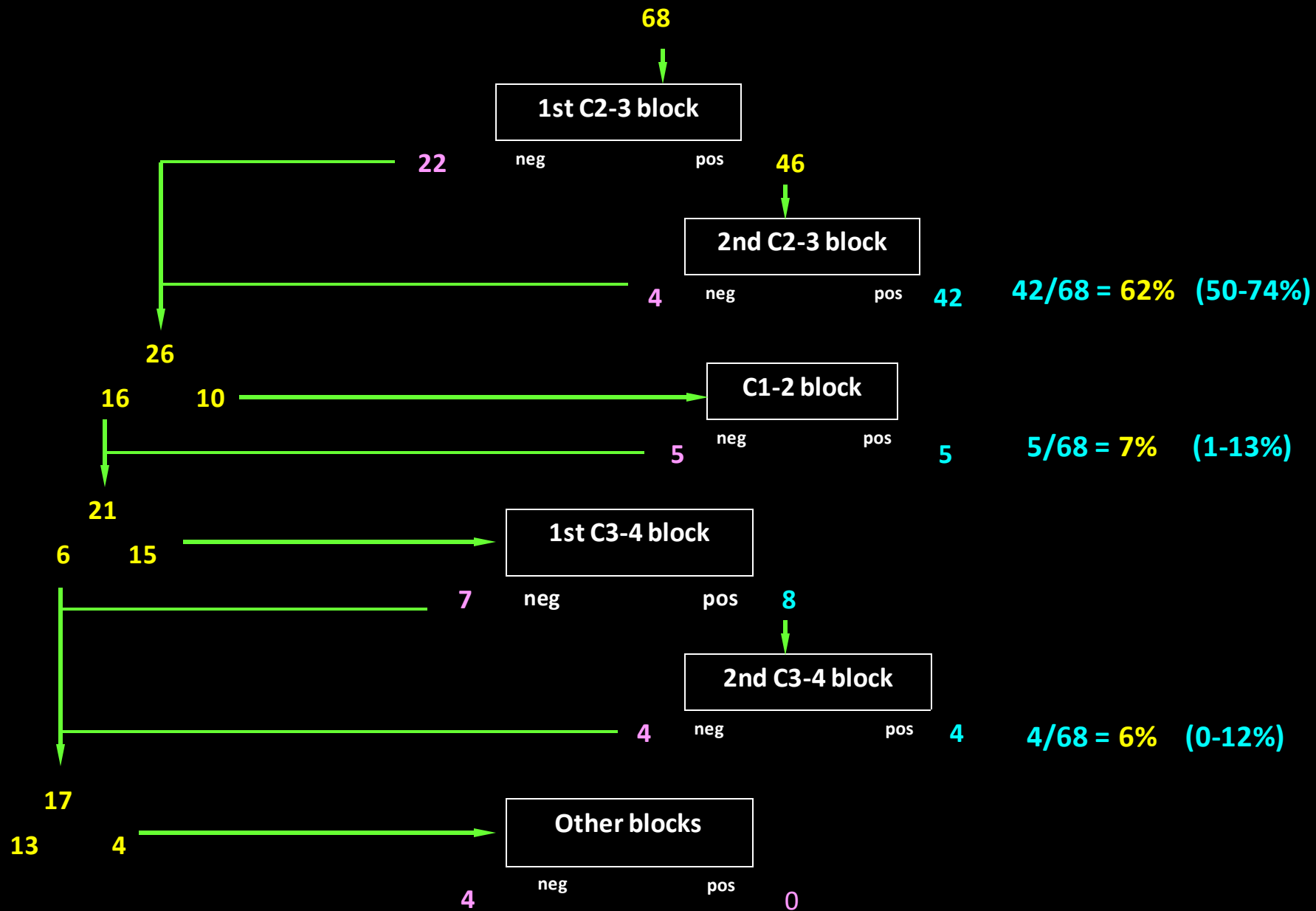


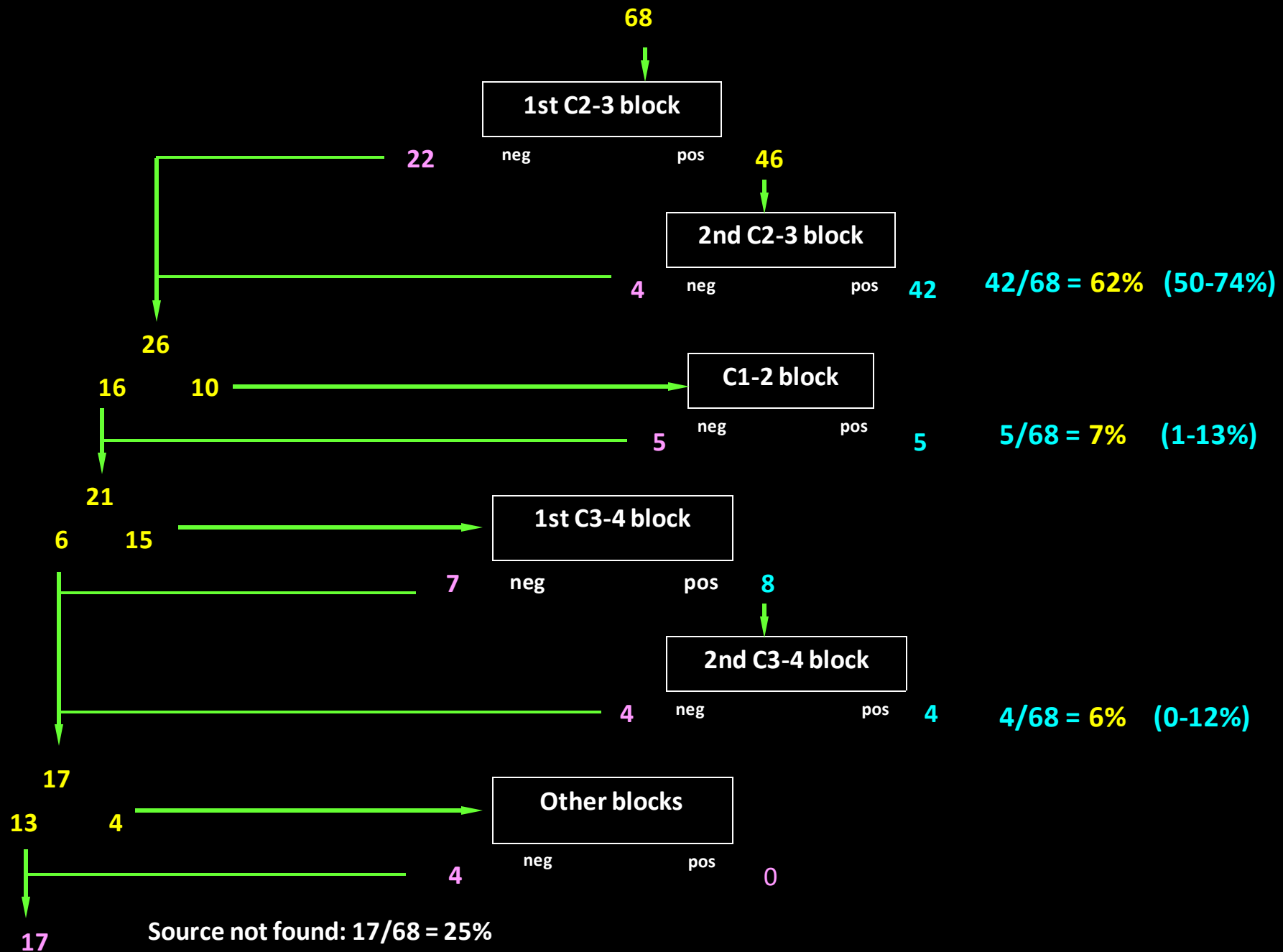












Patients with probable cervicogenic headache
in whom headache was an incidental, minor complaint

98



1st C2-3 block

98



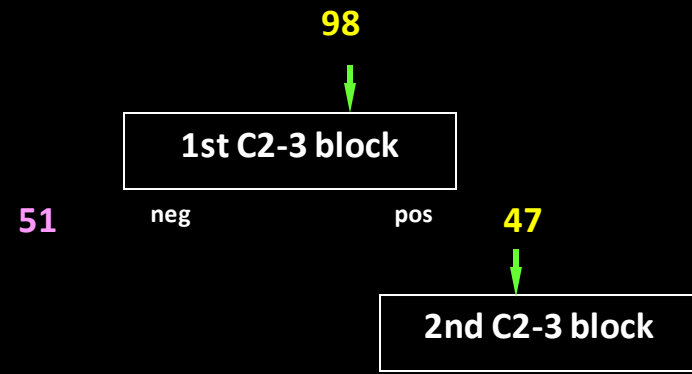
1st C2-3 block

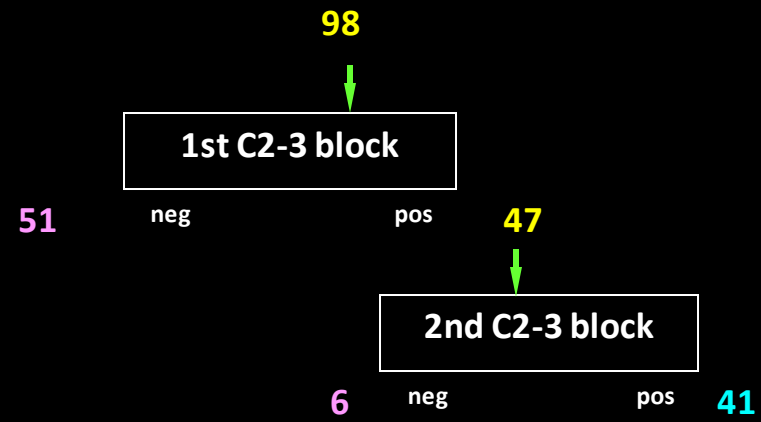
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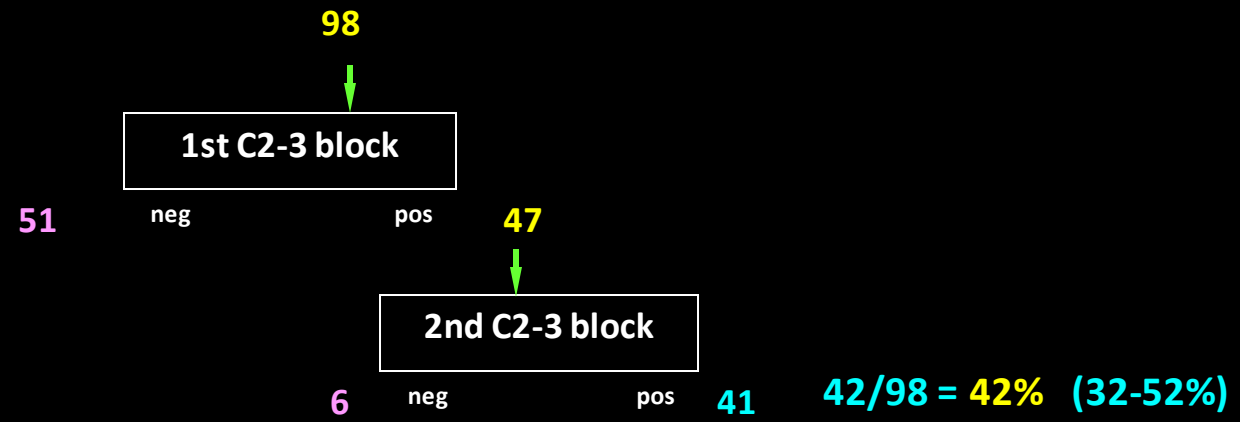
neg

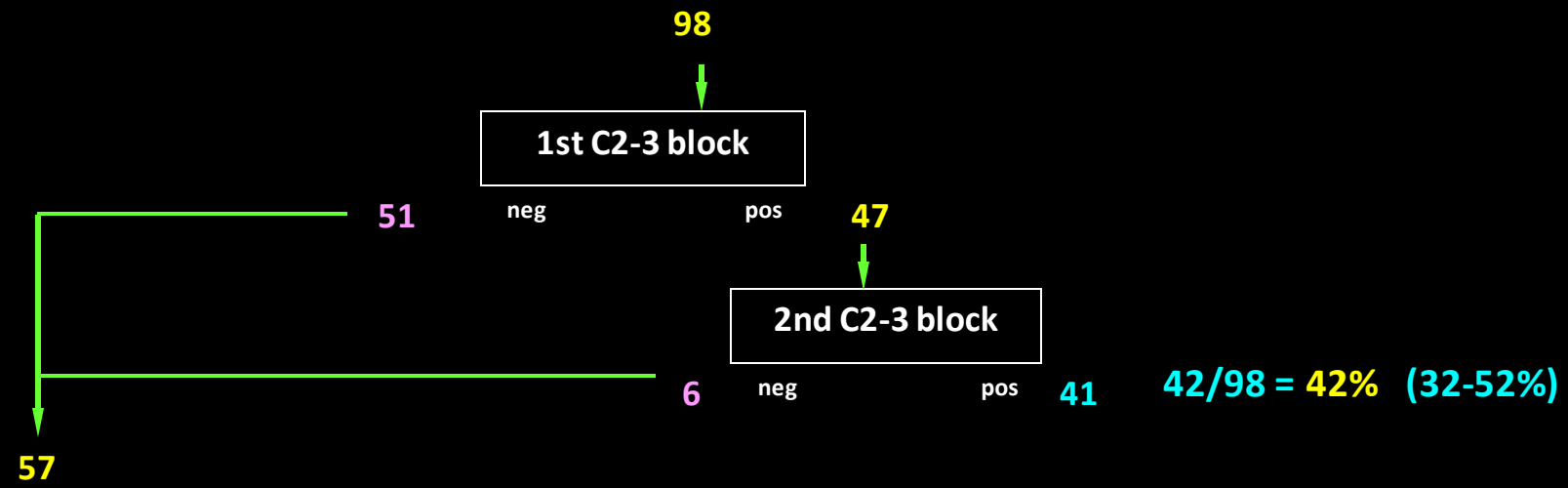
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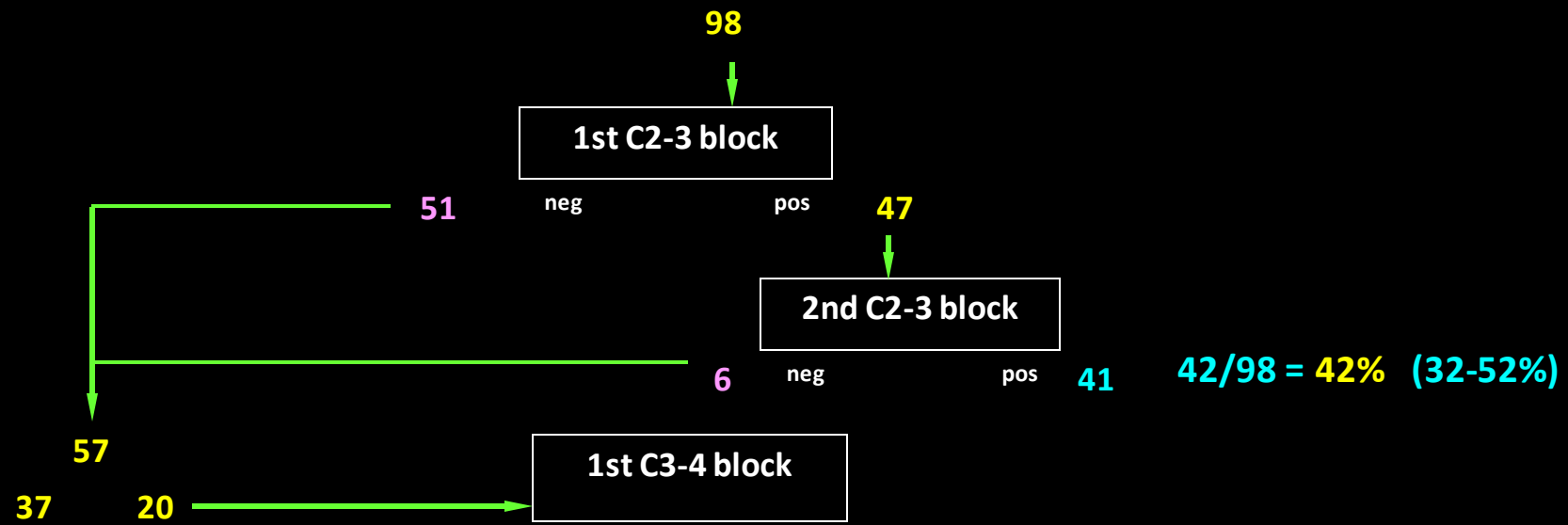
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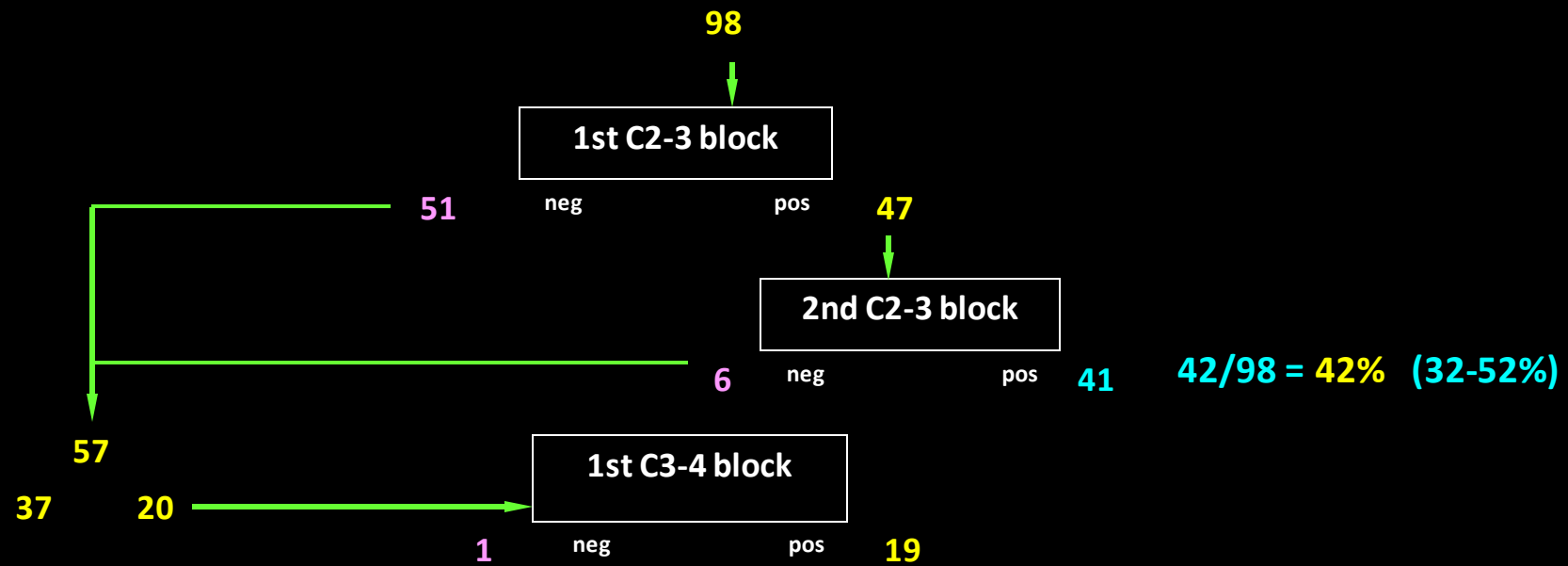


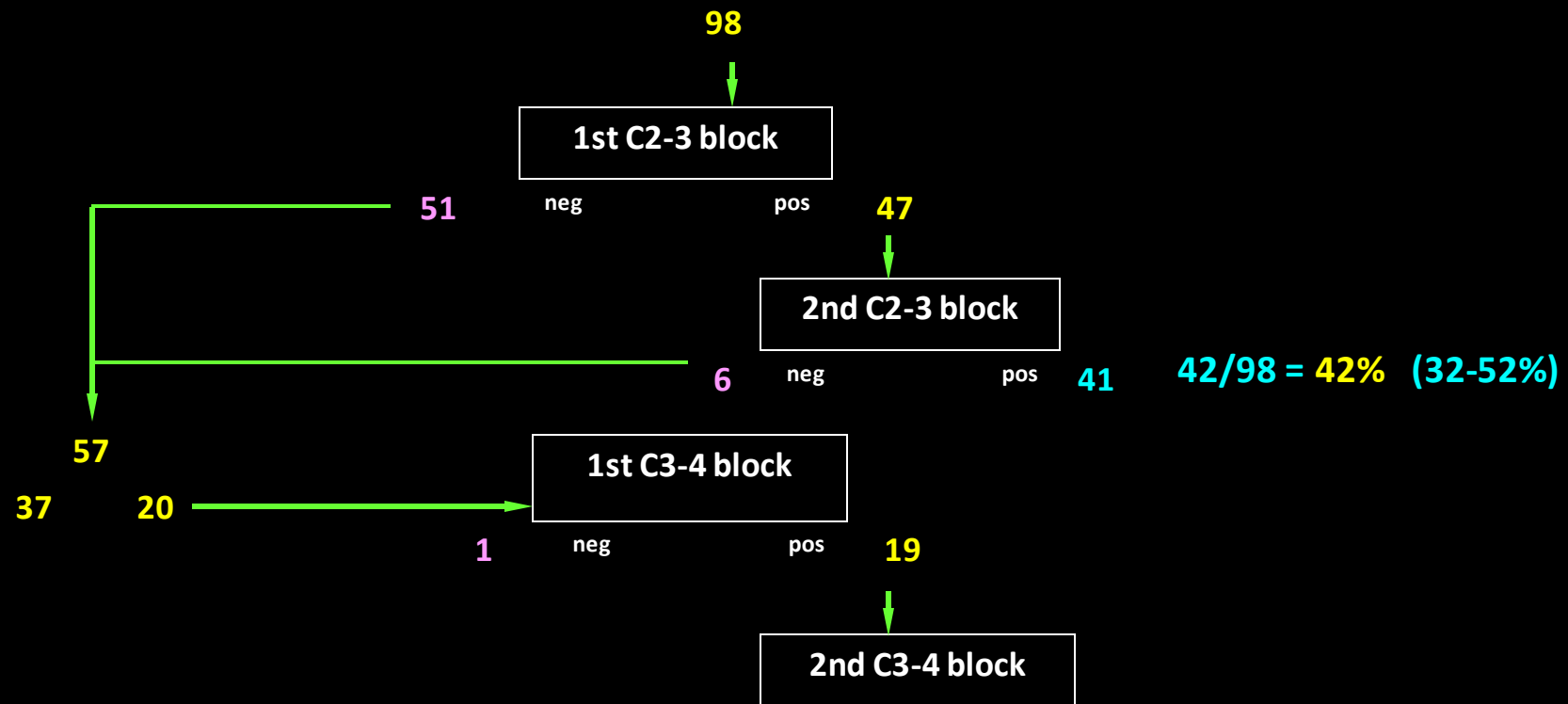


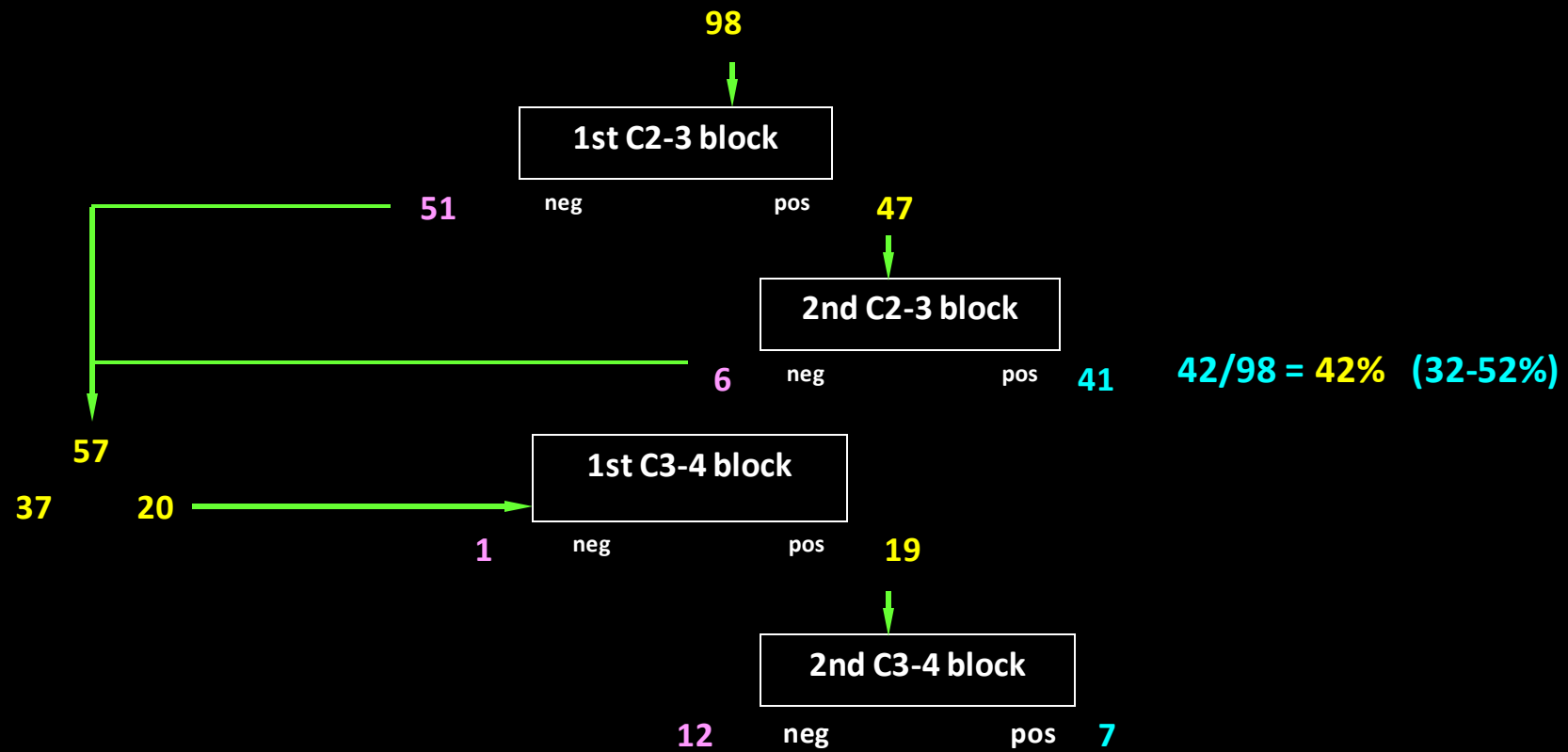


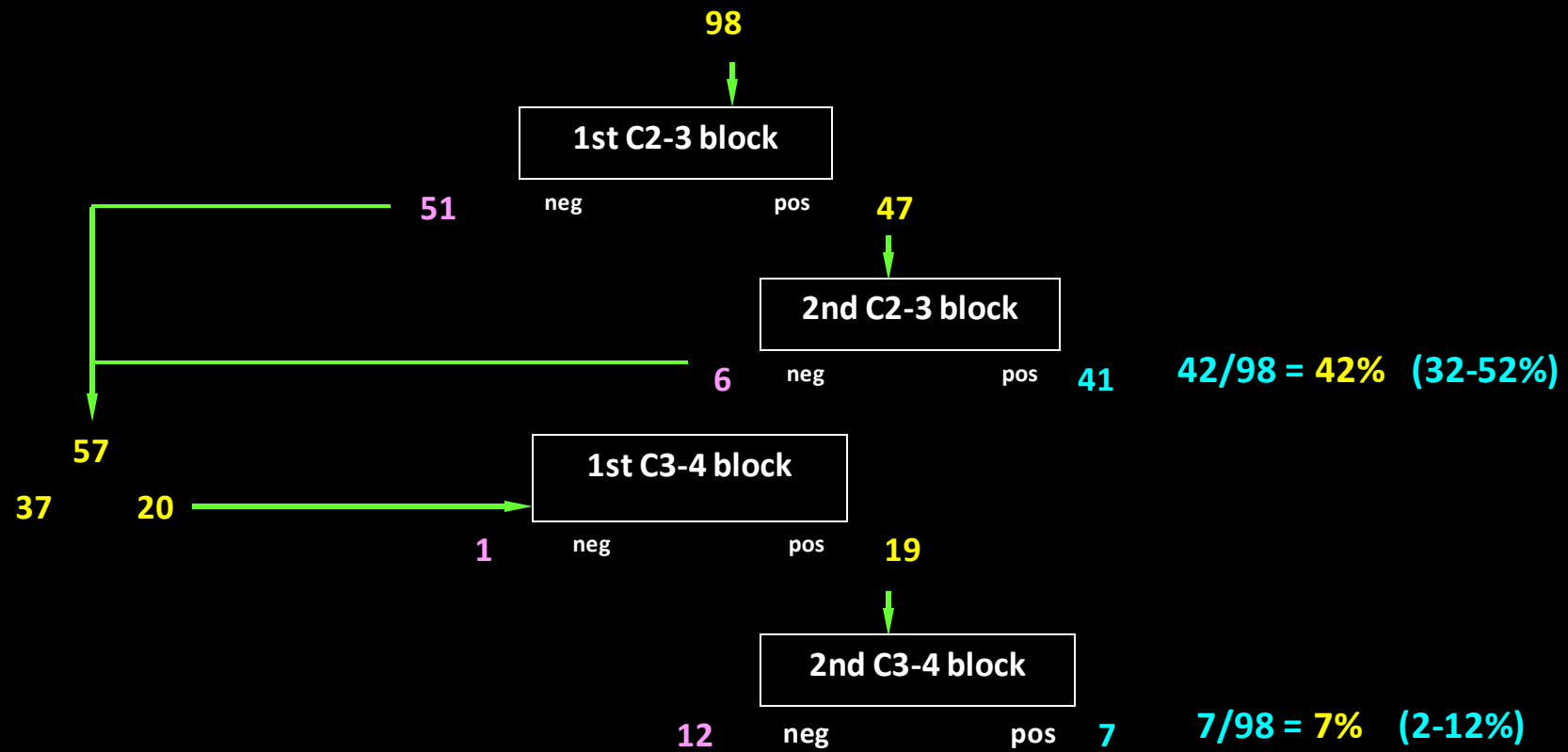


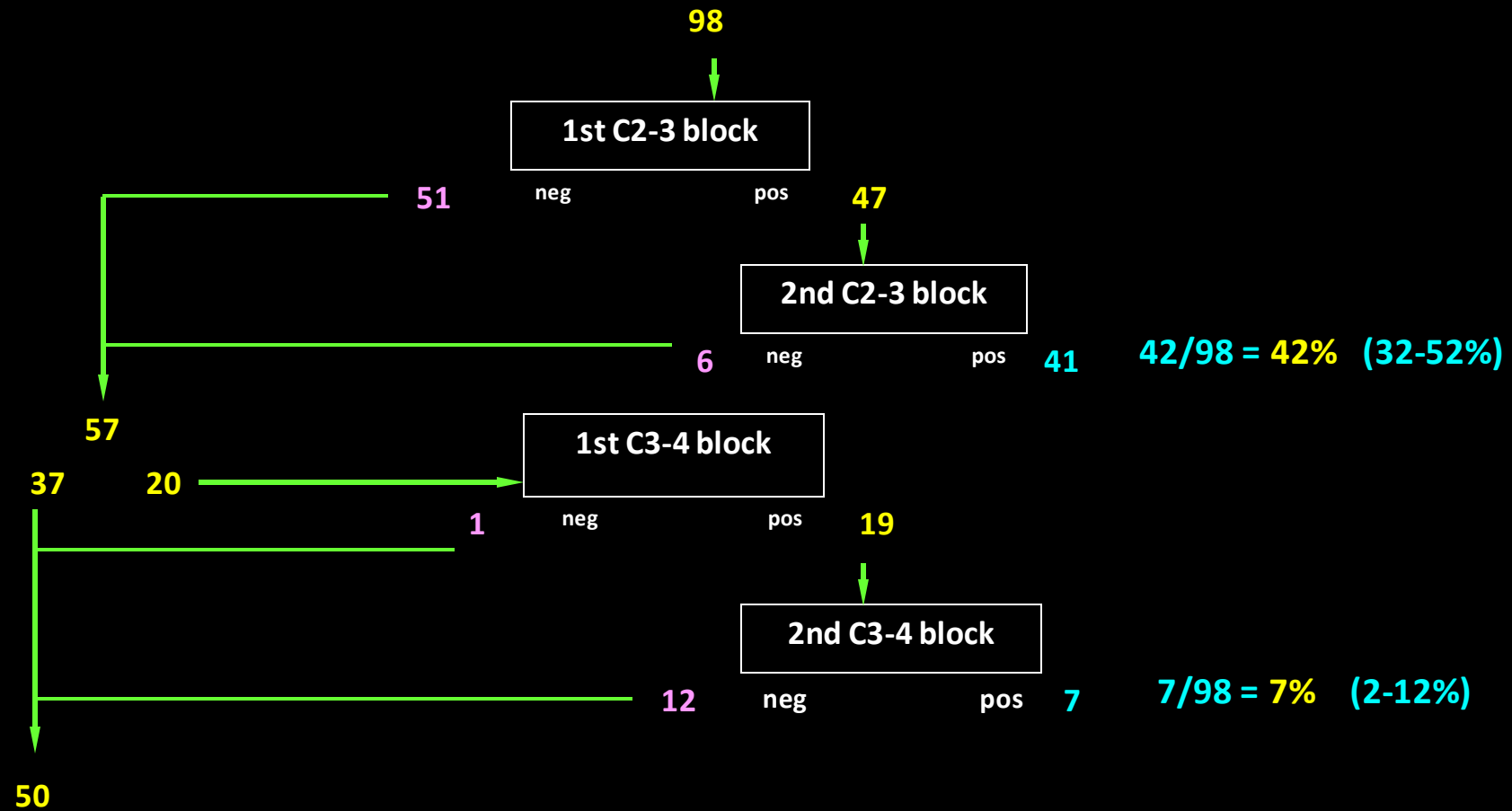


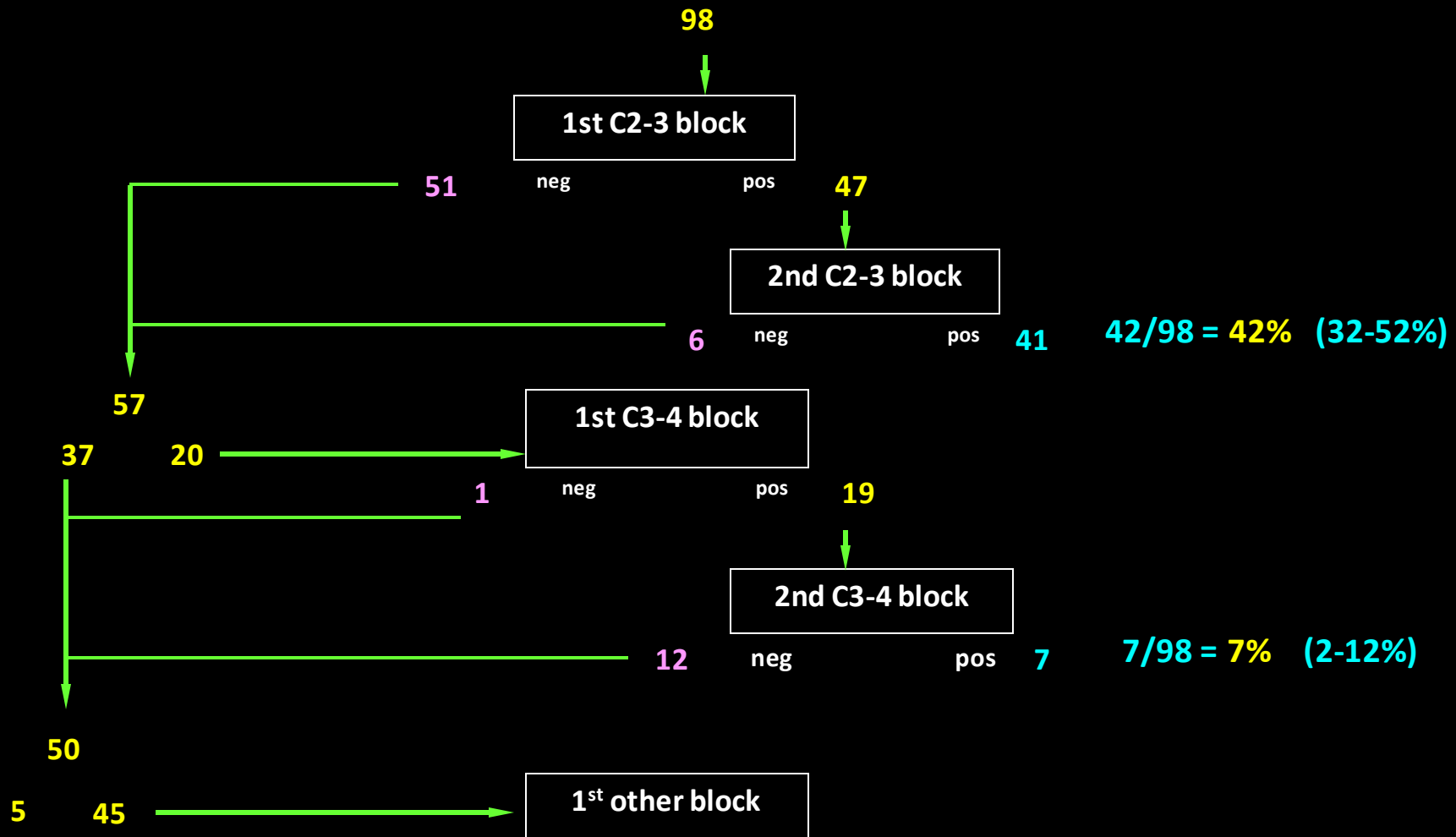


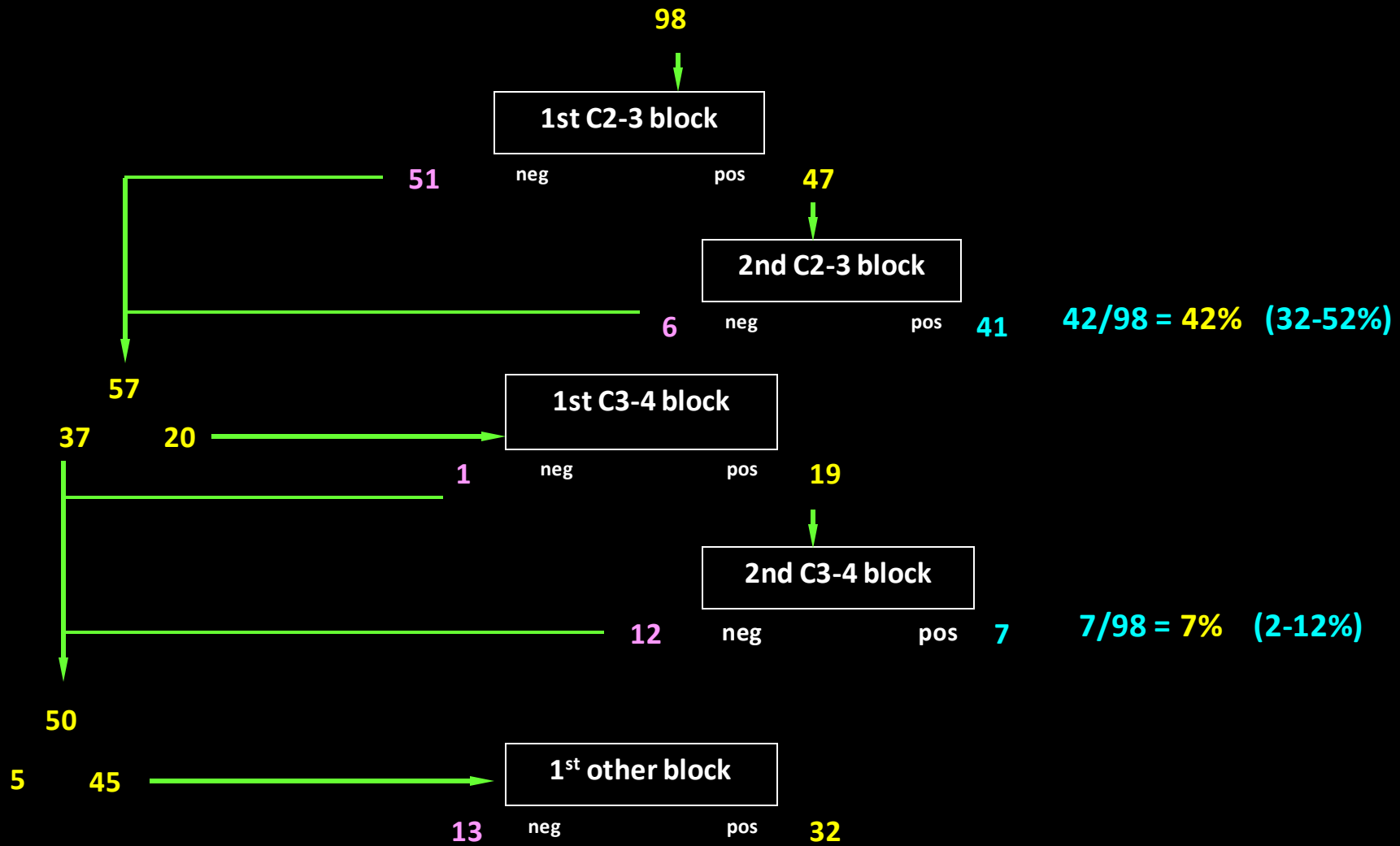


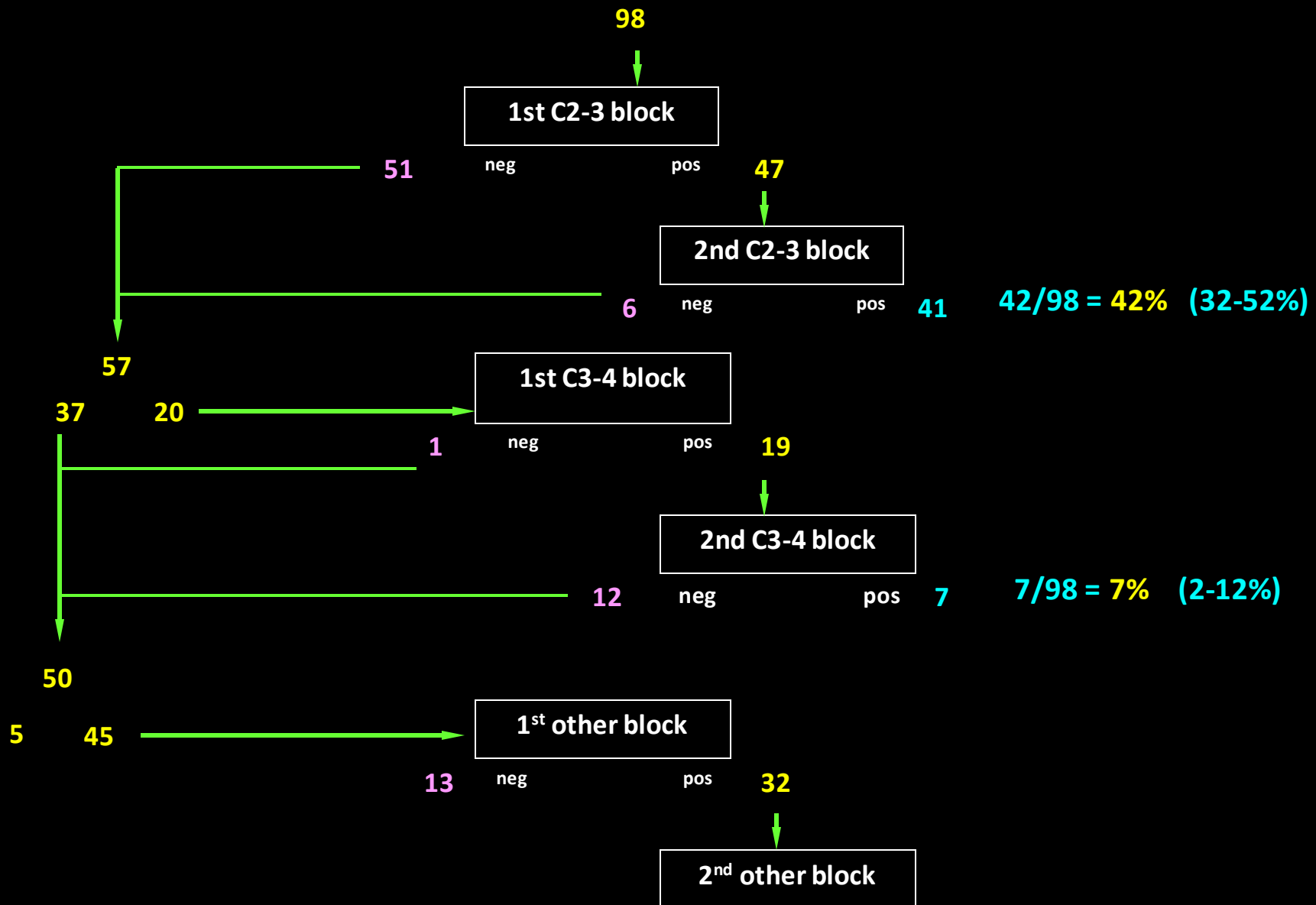


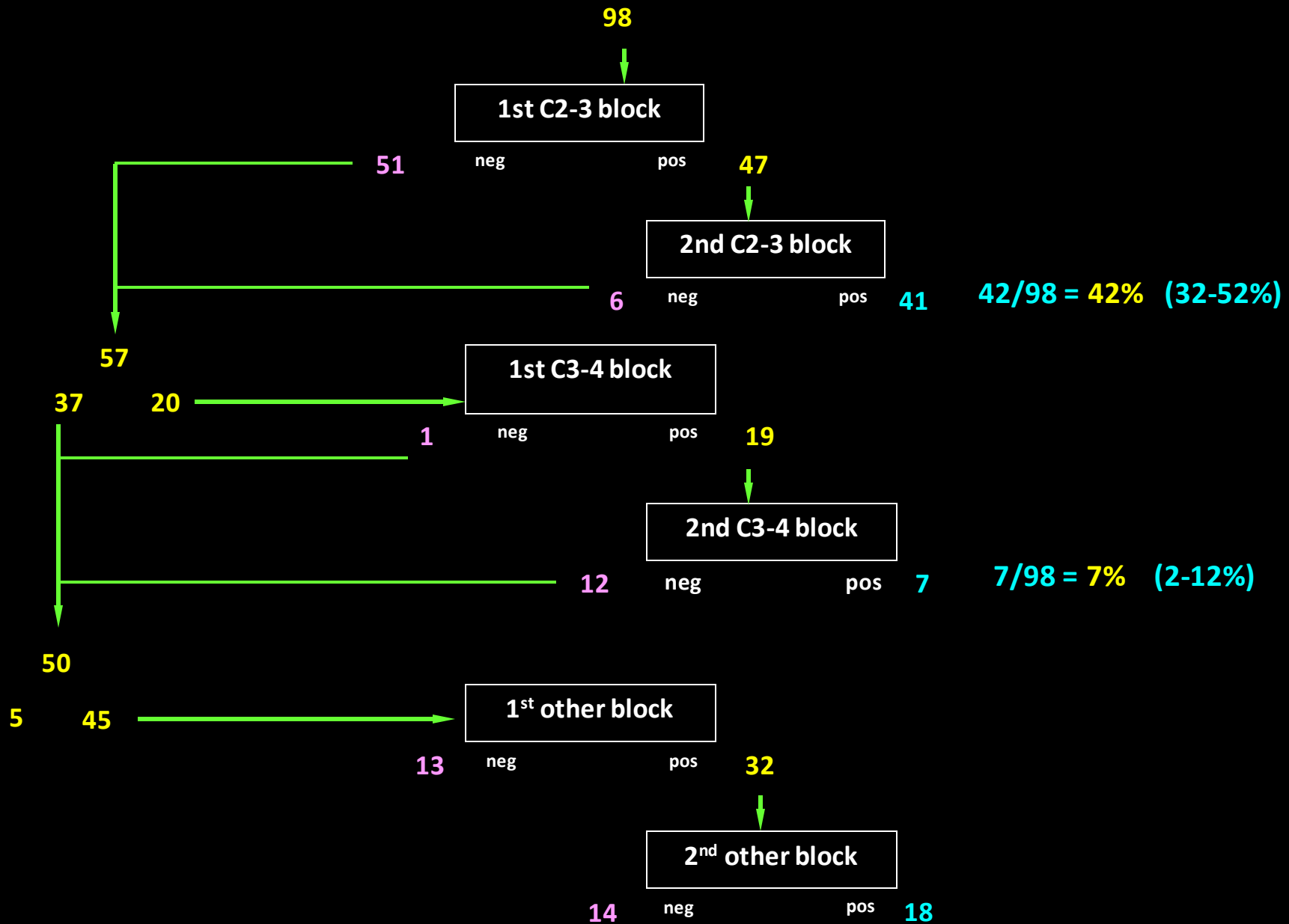


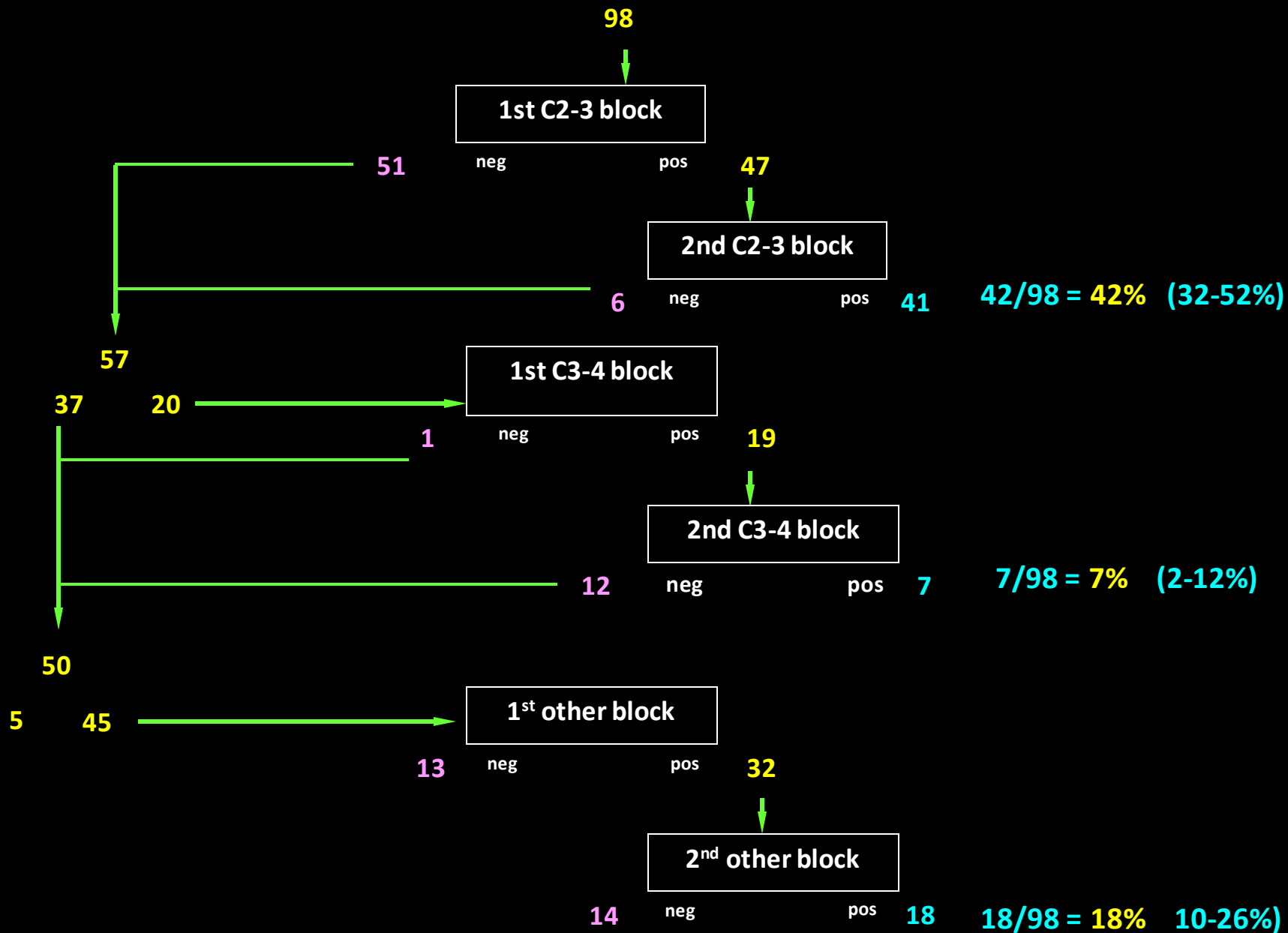


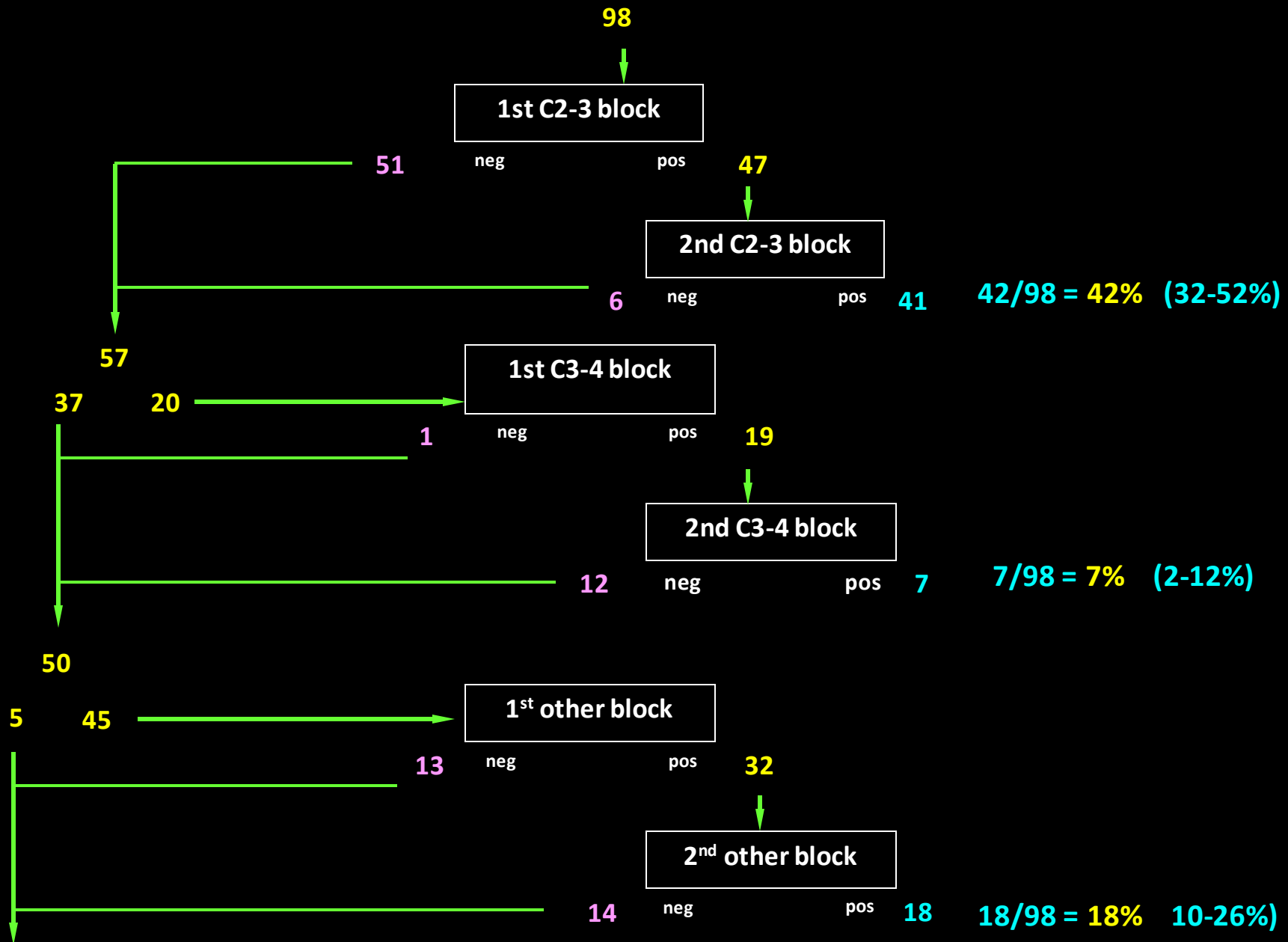


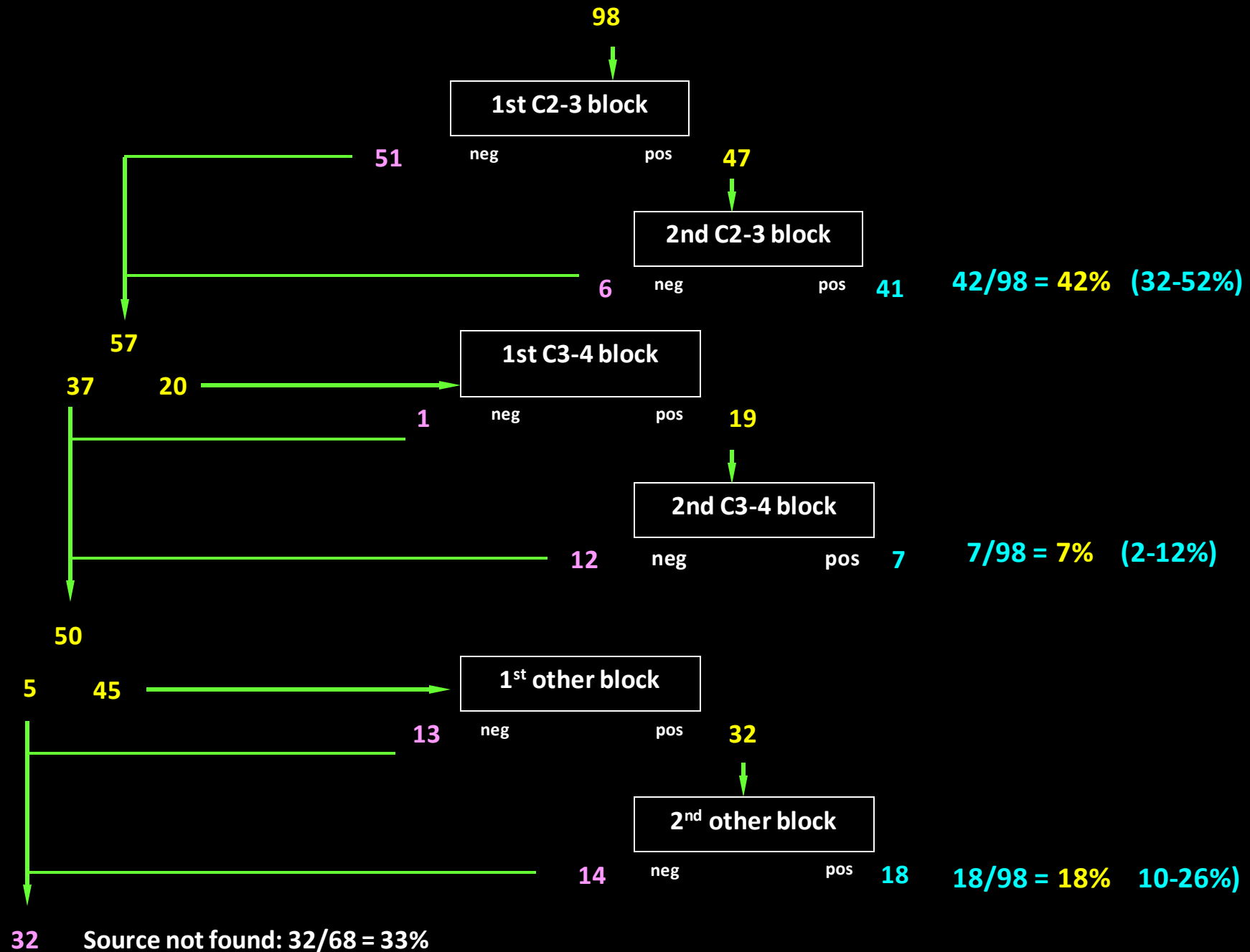












TREATMENT

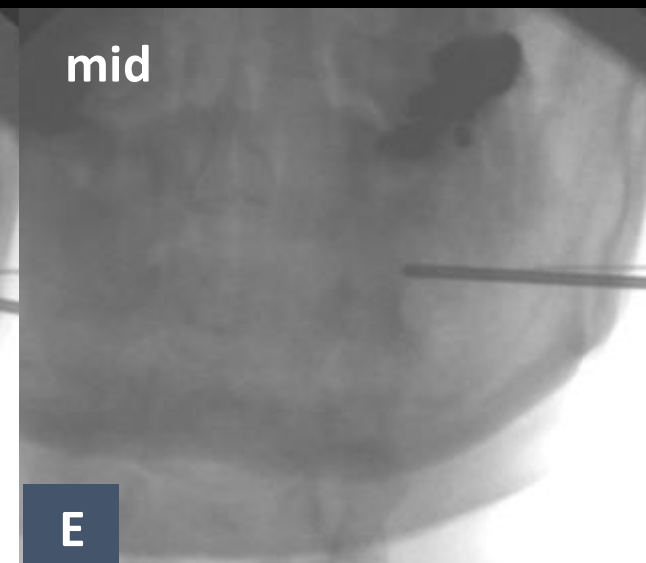
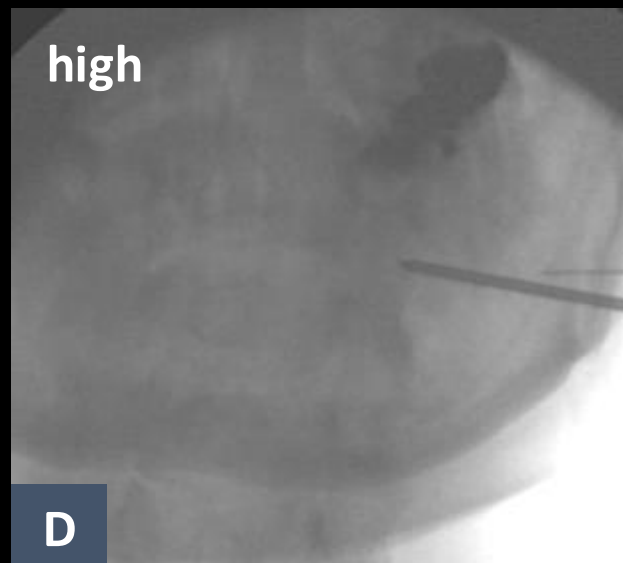
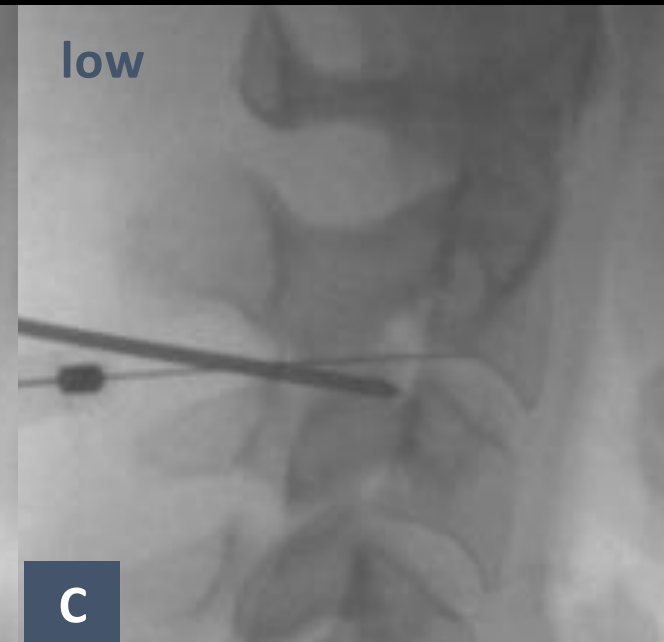
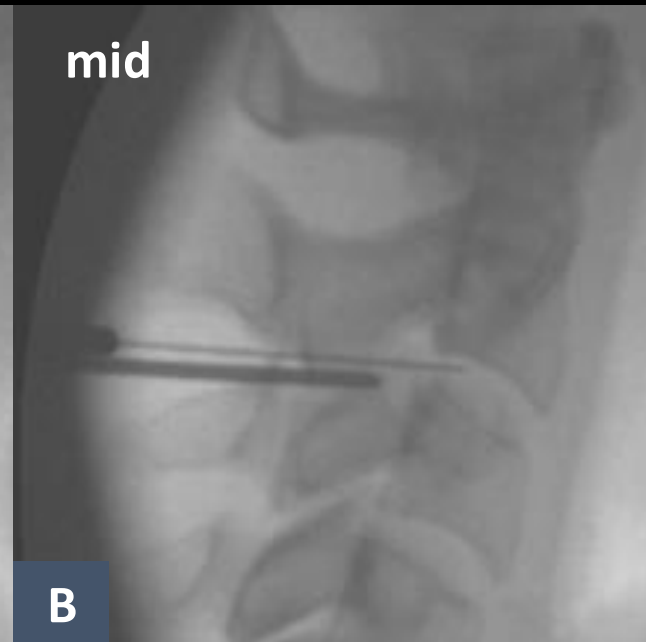
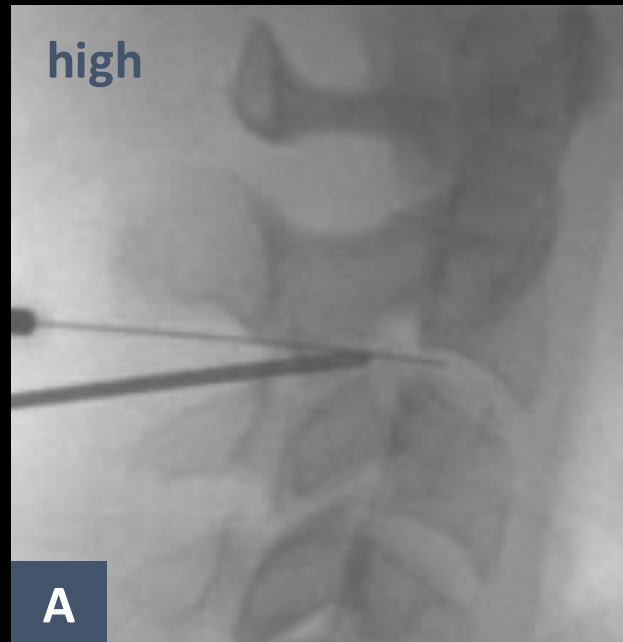
RADIOFREQUENCY THIRD OCCIPITAL NEUROTOMY for CERVICAL HEADACHE

Govind J, King W, Bailey B, Bogduk N.

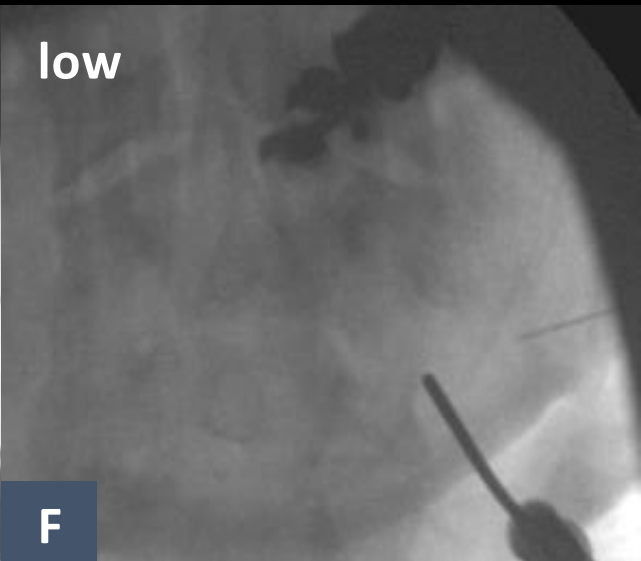
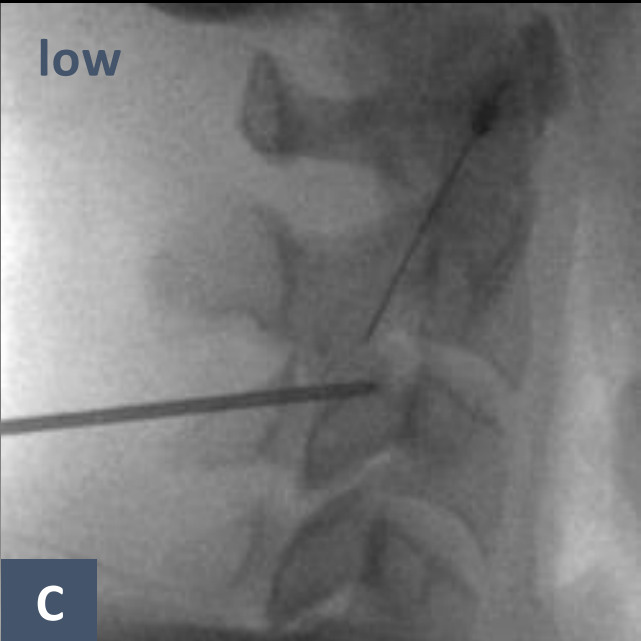
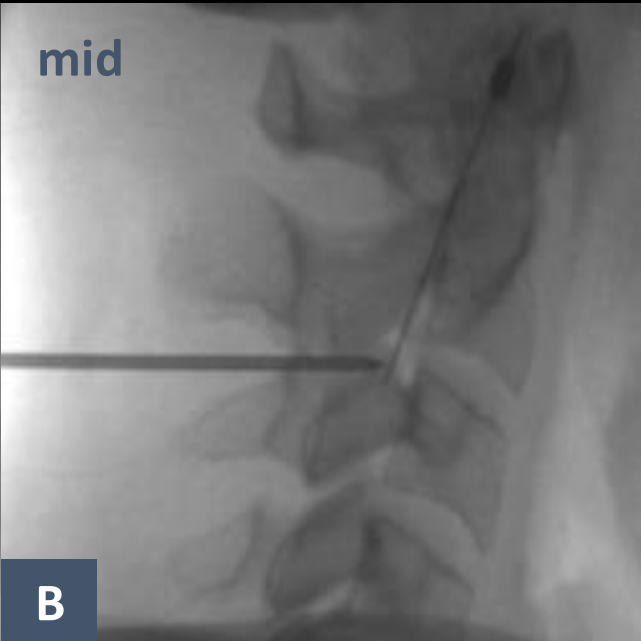
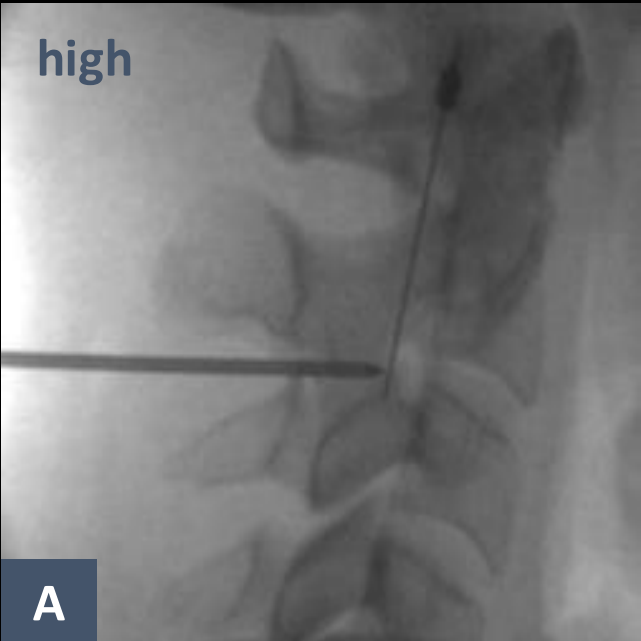
Radiofrequency neurotomy for the treatment of third occipital headache.

J Neurol Neurosurg Psychiatr 2003; 74:88-93.

Electrode placement: oblique pass



Electrode placement: sagittal pass



OUTCOMES

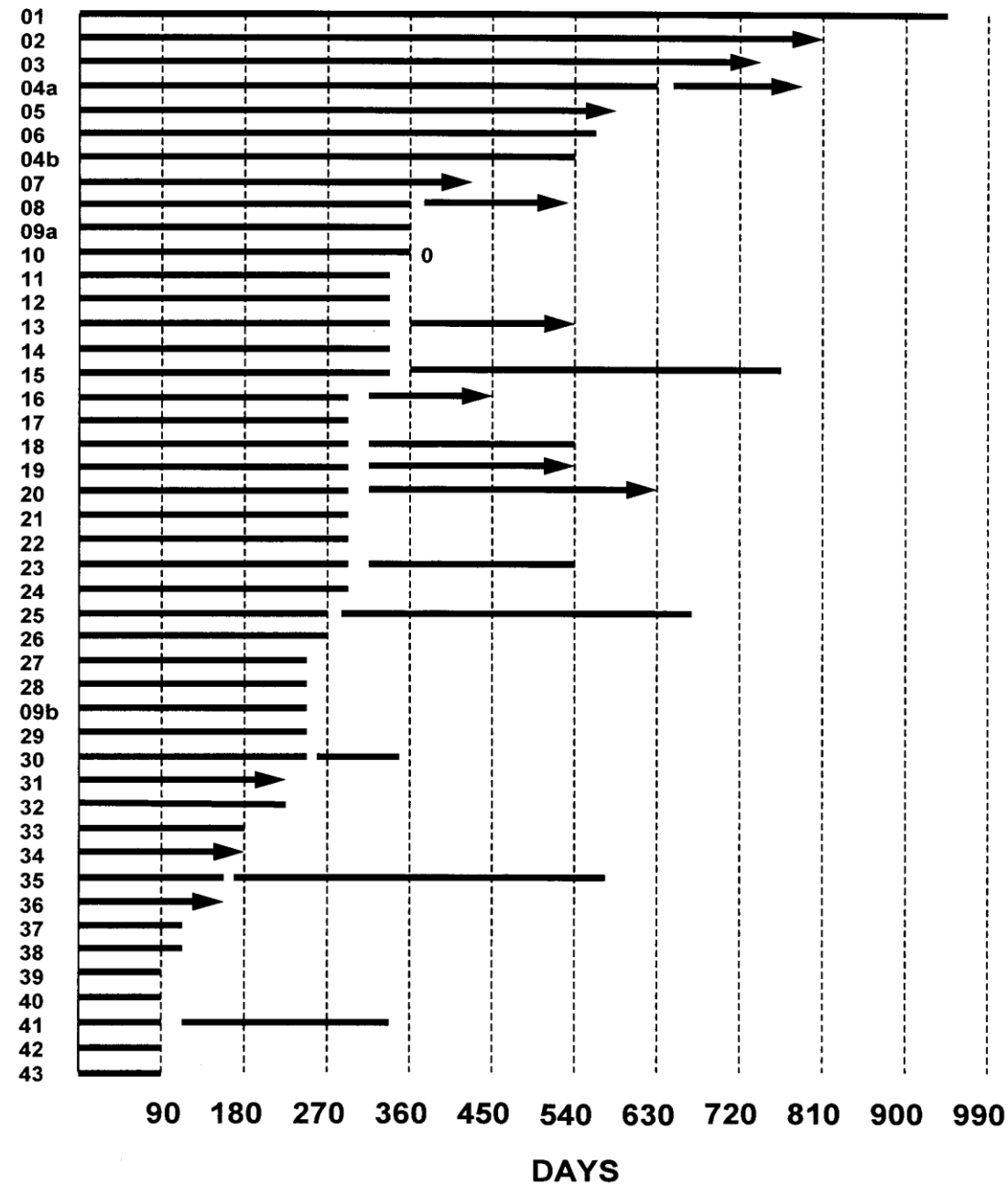
**49 patients with Third Occipital Headache;
double-block positive.**

Complete relief: 88% median duration: 297 days ++

Repeat in 14

Complete relief: 86% median duration: 217 days ++

PATIENT



OUTCOMES

Require

complete relief of headache
following controlled TON blocks

meticulous technique

Not influenced by litigation

Status	N	Success	Failure	Duration of Relief	
			median days	(interquartile range)	
Litigation	33	28	5	249 (94-312)	
No Litigation	16	15	1	297 (127-363)	
P		0.373	0.299		

CERVICAL HEADACHE

other sources

testable sources

lateral AA joint C1-2

IA blocks

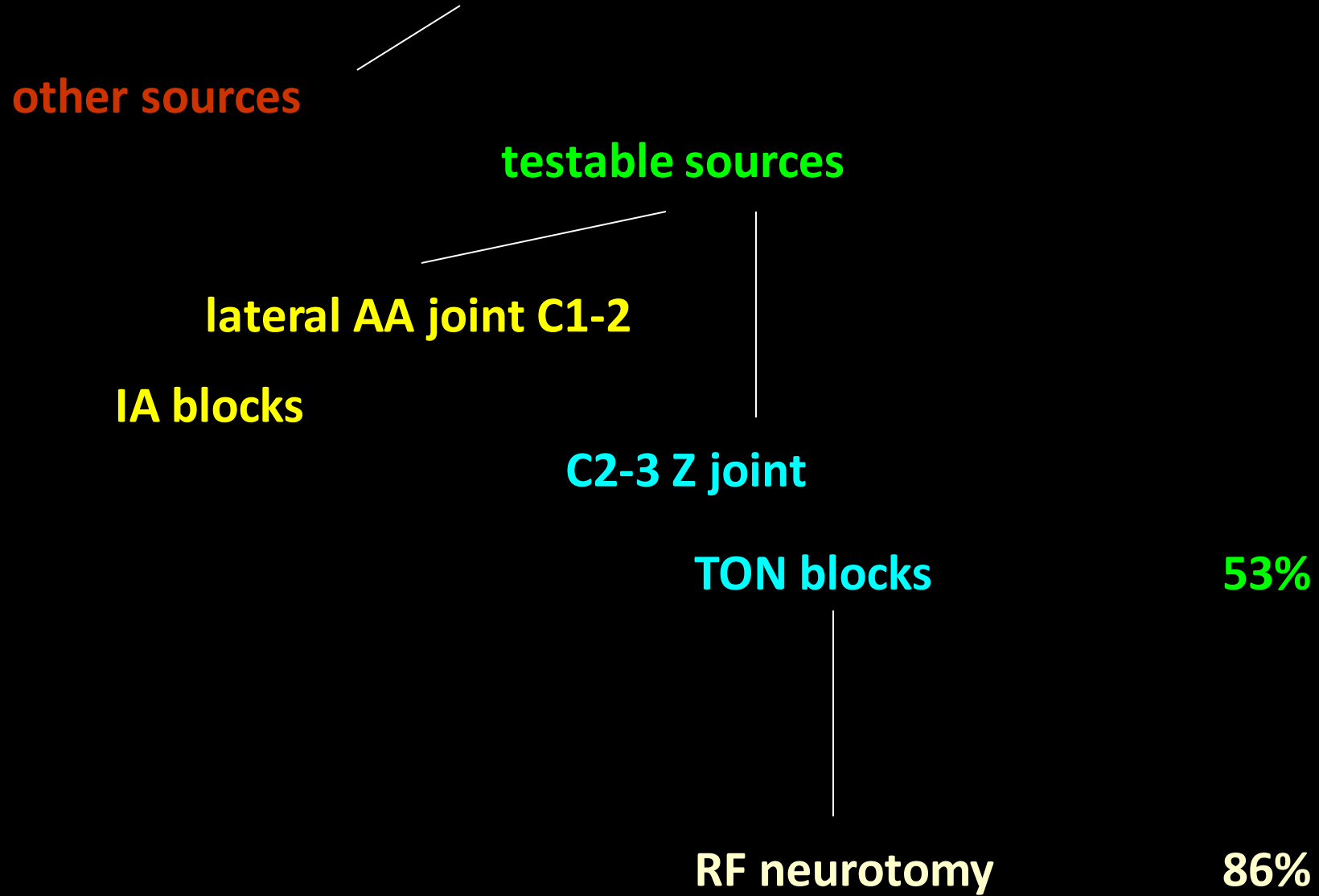
C2-3 Z joint

TON blocks

53%

RF neurotomy

86%



Bogduk N, Bartsch T.

Cervicogenic headache.

In: Silberstein SD, Lipton RB, Dodick DW (eds)

Wolff's Headache, 8th edn. Oxford University Press, New York, 2008, pp 551-570.

Bogduk N, Govind J.

Cervicogenic headache: an assessment of the evidence on clinical diagnosis, invasive tests, and treatment.

Lancet Neurology 2009; 8:959-968.

Bogduk N. The neck and headaches.

Neurol Clin 2014; 32:471-487.