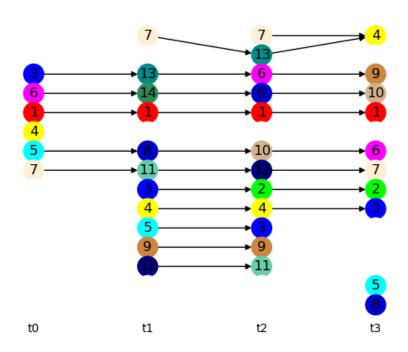
# B. B. S. Patient Summary Patient Study Based on Lesion Graph



Di Veroli B., Joskowicz L. A Graph Theoretic Approach for Analysis of Lesion Changes and Lesions Detection Review in Longitudinal Ontological Imaging, CASMIP Hebrew University, 2023

#### **Lesion Count According to Classification**

Time Layer	complex	disappeared	lone	merged	new	persistent	split
0	0	0	0	0	6	0	0
1	0	1	0	0	6	5	0
2	0	0	0	0	1	11	0
3	0	3	2	1	0	7	0

# Tracking the Changes in the Total Volume of the Tumors From One Scan to the Previous One

Time Stamp	Total Volume [cm³]	Volume Difference Percentage	Volume Difference [cm³]	
0	0.4	-	-	
1	1.32	+233%	+0.93	

2	1.11	-16%	-0.21
3	0.95	-14%	-0.16

# **Individual Lesion Changes**

### **New Lesions**

Lesions 5, 8 appeared for the first time in the last scan.

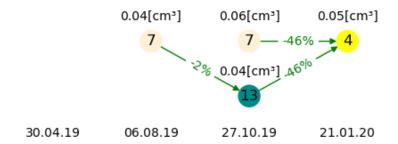
#### **Disappeared Lesions**

Over time, 4 lesions disappeared.

- 1 lesion was last identified in 30.04.19.
- 0 lesions were last identified in 06.08.19.
- 3 lesions were last identified in 27.10.19.

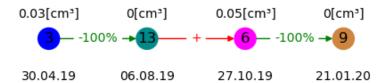
## **Lesions Appearing in Multiple Scans**

• The History of Lesion 4



Lesion volume has decreased by 31% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

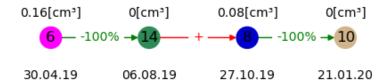
Classification of connected component: merge.



Lesion volume has decreased by 182% from previous scan to current scan. Volume consistently increased over time by 182% from first scan to last scan.

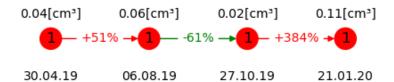
Classification of connected component: linear.

#### • The History of Lesion 10



Lesion volume has decreased by 49% from previous scan to current scan. Volume consistently increased over time by 49% from first scan to last scan.

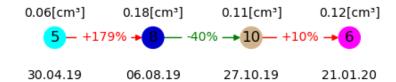
Classification of connected component: linear.



Lesion volume has decreased by 384% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: linear.

#### • The History of Lesion 6



Lesion volume has decreased by 147% from previous scan to current scan. Volume consistently decreased over time by 26% from first scan to last scan.

Classification of connected component: linear.

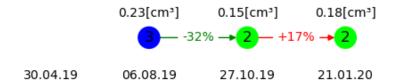
0.03[cm<sup>3</sup>] 0.09[cm<sup>3</sup>] 0.03[cm<sup>3</sup>] 0.1[cm<sup>3</sup>]  

$$7 - +193\% + 11 - -67\% + 270\% + 7$$
  
30.04.19 06.08.19 27.10.19 21.01.20

Lesion volume has decreased by 85% from previous scan to current scan. Volume consistently increased over time by 253% from first scan to last scan.

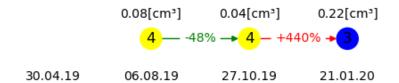
Classification of connected component: linear.

#### • The History of Lesion 2



Lesion volume has decreased by 17% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: linear.



Lesion volume has decreased by 0% from previous scan to current scan. Volume shows both increases and decreases over time from first scan to last scan.

Classification of connected component: linear.